

DEVELOPING A CONCEPTUAL MODEL FOR THE CAUSAL STRUCTURE OF PRODUCT AESTHETIC BOREDOM

Seyed Javad Zafarmand¹, Makoto Watanabe²

¹ Faculty of Art and Architecture, Shiraz University, Shiraz, Iran, Zafarmand@ut.ac.ir

² Faculty of Engineering, Chiba University, Chiba, Japan, m.watanabe@faculty.chiba-u.jp

ABSTRACT:

This research is aimed at clarifying the causal structure of the phenomenon of '*Product Aesthetic Boredom*' (*PAB*), which can be considered the negation of product aesthetic durability. Based on a literature review on boredom, a conceptual model for the causal structure of boredom is built to be used as the hypothetical framework of the research. To verify the model and to adapt it to the phenomenon of *PAB*, a fieldwork is done in two different contexts, Iran and Japan. The fieldwork consists of three methodic phases: exploratory inquiry on product replacement; specific survey on individuals' experienced *PAB* focusing on mobile phones; and experiment on the common appraisal of *PAB* concerning mobile phones. Based on the results of the fieldwork, the proposed model is expanded to describe the factors and the causal structure of the phenomenon of *PAB*.

1. INTRODUCTION

This research is aimed at clarifying the causal structure of the phenomenon of 'the significant reduction of the aesthetic value of a product after continually or repeatedly using or looking at it' called Product Aesthetic Boredom (PAB), namely the negation of product aesthetic durability (Zafarmand, et al, 2003 a). Product aesthetic durability has been identified as the main concern of Product Aesthetic Sustainability (Zafarmand, et al, 2003 b). A product's aesthetic durability can be improved by reducing the probability of its boringness or forgoing boring forms and aesthetic patterns in its design (Zafarmand, et al, 2003, Springer 2006). As the forms and aesthetic features of a short-life and long-life product for aesthetic durability in their actual life-span are not the same (Zafarmand, et al, 2005), the outcomes of this research would contribute to the effective management of the aesthetic durability of a product in relation to its planned life-span.

In this research, to study PAB, first, based on an extensive literature review on boredom, a conceptual model for explaining the causal structure of boredom is proposed to be considered for use as the hypothetical framework of the research. To verify the model and to adapt it for the phenomenon of PAB, comparative fieldwork is done in two different contexts, Iran and Japan. The fieldwork consists of three methodic phases including: an exploratory inquiry on product replacement to determine what object and subject are suitable for the experimental study on PAB; a specific survey on individuals' experienced PAB to find out the causal factors for PAB; and an experiment on the common appraisal of PAB to compare the various form-structural patterns of PAB extracted from two different contexts. The results and implications of the fieldwork will finally be applied to developing the model for PAB.

2. BACKGROUND

P. Desmet (2002) has studied the application of emotions in design in relation to the images of artifacts. He has also developed the tool and instrument for measuring the unpleasant and pleasant emotions of products. The model he has used for product emotions is adapted from Russell's 'Circumplex of Emotions' (Russell, 1980) presented in Figure 1, also based on Watson & Tellegen's work (1985). Russell's Cicumplex defines all emotions through two dimensions of 'pleasantness' and 'activeness'. The model, thus, involves 8 total affective states or areas in which all emotions can be placed. Boredom is placed in the 'unpleasant and low-activation' area of the model. This shows the emotional state of Boredom in the model. There are lots of

descriptive words for different emotions that can be listed for each state. However, Desmet (2002) highlights 14 negative and positive emotions in relation to product and design (Fig. 2). The unpleasant emotions include indignation, contempt, disgust, unpleasant surprise, dissatisfaction, disappointment and boredom. In contrast, the pleasant ones are desire, pleasant surprise, inspiration, amusement, admiration, satisfaction and fascination (Desmet, et al, 2002). As 'boredom' is located opposite to 'satisfaction', boredom seems to be a strongly negative product emotion.

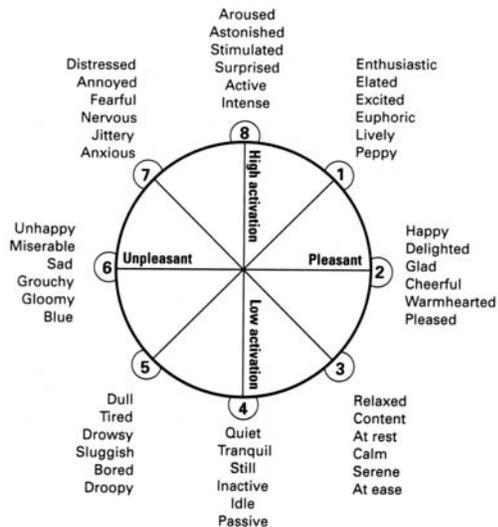


Figure 1: Russell's Circumplex of Emotions.

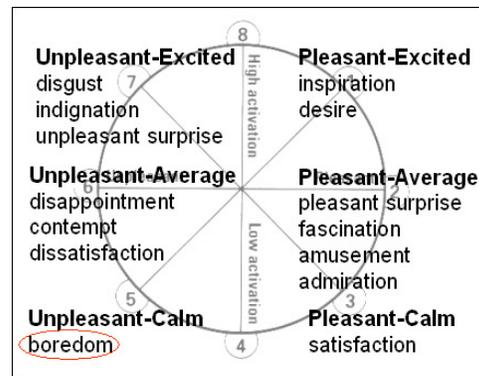


Figure 2: Desmet's 14 main product emotions.

In fact, most psychologists don't consider boredom a simple or basic emotion. As Fisher (1993) argues, there is no agreed upon definition or well-developed instrument for measuring it and there is no comprehensive theory of its causes. Russell's model simply sets boredom as one of the low activation and unpleasant affective emotions. Such a simplification doesn't precisely explain the complexity and causal structure of boredom and its exceptional nature. There is a collection of definitions of boredom that somehow contradict each other (Rule, 1998). The main part of that collection is briefly presented in Table 1.

For the sake of better understanding the nature of boredom, it seems necessary to phenomenally and etologically study the issue. Boredom, unlike many other emotions, is very dependent on time and duration. Most emotions are the immediate response to an object or event. But boredom takes a considerable length of time to occur. "Indeed, the German word for boredom, *Langeweile*, literally means a long time" (Barbalet, 1999). Barbalet (1999) argues the particular characteristic

of boredom is the distortion of time-sense that typically accompanies a feeling, in which time appears to stand still.

Sometime boredom is mistakenly conflated with ennui and depression, since these three all include an absence of vital interests in events or activity. But, as Barbalet concludes, the elements of active discomfort and the restless feeling of dissatisfaction characterize boredom and set it apart from the other two. Moreover, Barbalet emphasizes the heavy dependence of boredom on the social context, and highlights ‘lack of meaningfulness’, ‘monotonous event’ and ‘repetitious activity’ as the main causal factors that contextually evoke boredom. Barbalet’s enlightened facts seem to explain the causal structure of boredom and its factors.

Psychology	Notion	As a Basic Emotion	Plutchik (1980)
		As a Complex or Mixed Emotion	Johnson-Laird & Oatley (1988)
		As one Mood	Schwarz & Clore (1988)
		As a State of Consciousness	Mikulas & Vodanovich (1993)
		No agreed Definition or Measurement	Fisher (1993)
		As a Complex & Deeply Individual Phenomenon	Rule (1998)
Psychology	Definition	Absence of Experiencing Interests	Farmer & Sundberg (1986); Klinger (1993)
		Unpleasant State of Low Arousal & Motivation	Mikulas & Vodanovich (1993)
Phenomenology		Active Discomfort	Peters (1975); Gaylin (1979)
		Restless Feeling of Dissatisfaction	Barbalet (1999)
		A form of Anxiety and Distress about Lack of Meaningfulness and Vital Interest	Ibid
		Distortion of Time-sense [Longeweile, German word for Boredom literally means Long Time]	Ibid
Etiology		Activities Without Subjective Meanings	Ibid
		Repetitious Works	Ibid
		Monotonous Activities	Ibid

Table 1: Summary of the most important points of view on boredom and its nature.

As Table 1 shows, the brief collection of definitions of boredom alongside the main issues of this review is summarized in three categories: Psychology involving notion and definition; Phenomenology; and Etiology. Based on the points in the above review of boredom and especially the enlightened facts from Barbalet, here a conceptual model for the causal structure of boredom is established (Fig. 3). This model clarifies the causal structure and phenomenal nature of boredom. The factors of boredom are differentiated in terms of the statuses of object and

subject. There is also a screen involving two parts, context and sense, in the model. The model suggests: 'an event or activity, a rather repetitious, monotonous or long-time one, in the case of not being lovely, interesting and/or meaningful and of bringing an active discomfort, low arousal and/or time-sense distortion, provokes boredom, namely a restless feeling of distress and dissatisfaction'.

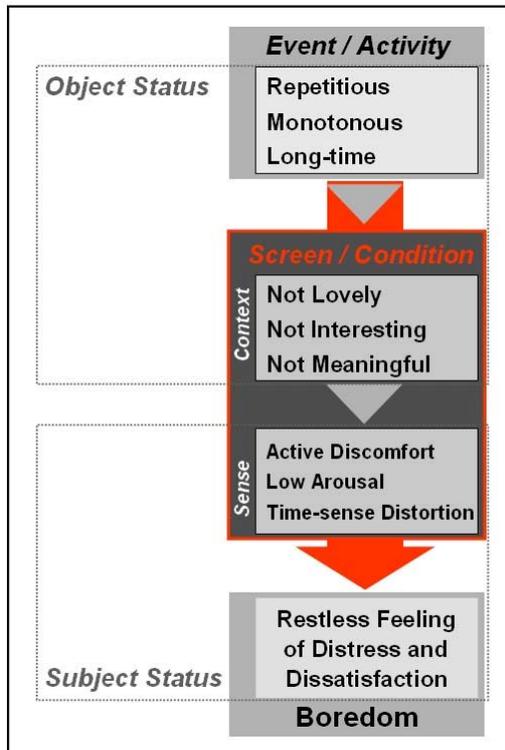


Figure 3: A conceptualized model for the causal structure of boredom.

3. OUTLINE

To experientially approach the phenomenon of PAB, this research implements comparative fieldwork. To work out an experimental framework for the fieldwork, the following hypothetical questions have been considered:

- What types of products may be replaced because of boredom?

- Which one may be more boring?
- In what age range are the users who replace the products more?
- In what age range are the users more bored by the products than the others?
- What aesthetic factors under which patterns may cause user boredom?
- And, what are the various form-structural patterns of PAB in relation to the variety of individuals, socio-cultural contexts and market backgrounds?

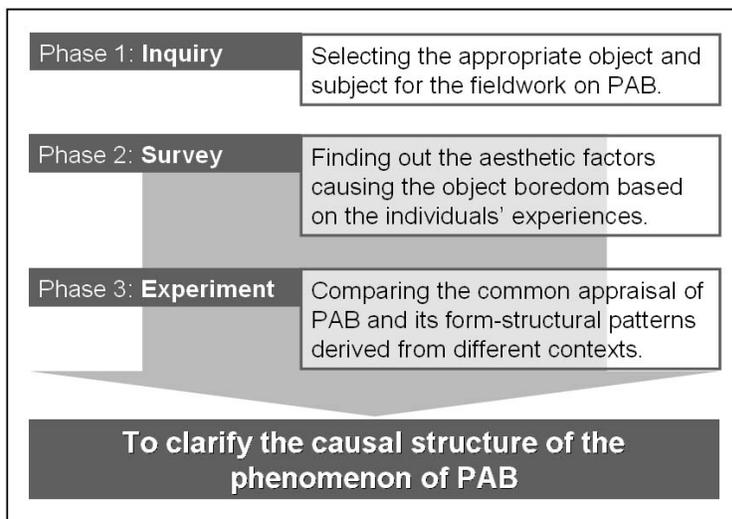


Figure 4: Outline of the fieldwork for experimentally investigating PAB.

Considering the above questions, the fieldwork involves three methodological phases. A diagram outlining the fieldwork is presented in Figure 4. The first phase is an exploratory inquiry to identify the suitable object and subject for the next phases of the fieldwork. The second phase is a questionnaire survey on the aesthetic boredom of the selected object and subject age group in order to find out the causal elements of PAB and some boring samples of the selected object based on the individuals' experiences of product boredom, and to finally designate the variables and the object samples for the next phase, the experiment. The third phase is the experiment to appraise the rate of boredom with the selected samples of the object in relation to their form-structural characteristics by showing the samples to the subjects and asking them to evaluate the

samples in terms of the variables derived from the previous phase. The experiment aims to identify the form-structural patterns of the selected samples and the rate of their boringness. The results of the survey reflect the individuals' actual experiences of PAB, whereas the results of the experiment provide a collective appraisal on PAB in respect of the same object. In order to prove the effects of the socio-cultural context and market background on PAB, the survey and the experiment in this research are done on Iranian and Japanese subjects, as Iran and Japan are two Asian countries with quite different industrial backgrounds and socio-cultural and market contexts. The results derived from these two different contexts are then compared.

4. METHOD

4.1. EXPLORATORY INQUIRY

The theme of the exploratory inquiry is 'product replacement before breaking'. It has been done through a set of definite questions answered by the householders of 75 Japanese families residing in Chiba. The respondents ranged in age from 20 to 80. They have marked down the unbroken products they replaced during the 10 years before and the reasons for the replacements in terms of seven choices: aesthetic problem; appearance or external damage; want new style; boredom; want new function; oldness; and other reasons (Zafarmand, et al, 2006 a).

4.2. SURVEY

In the survey information is obtained through the regular and predefined questionnaire administered to 170 Japanese students at the Design Department of Chiba University, ranging from 18 to 28 years of age, 69% of them being male, and 120 Iranian students ranging from 19 to 30 years of age, 52% of them being male. The Iranian students belong to the field of Design at University of Tehran, Islamic Azad University, Tehran University of Art, and Shiraz University. The questionnaire contains: a face sheet; a table for listing the used MPs' specifications; and some questions about the personal and general reasons for replacing the MPs, the experience of boredom with the used MPs and its causes, and the boring colors, shapes, forms and/or other aesthetic elements of the MPs. The respondents were free to write their answers without any limitation. The keywords derived from the completed questionnaires are categorized and summarized using the KJ Method to specify the main items for the analysis. Then, the data

matrices of the specified items are arranged for quantifying and clustering the derived items. The methods of analysis are Quantification Theory type III and Cluster Analysis. The variables required for the next phase, the experiment on PAB, are decided upon based on the results of the clustering of the factors of MP's aesthetic boredom. To select the suitable samples for the experiment, the MP models used by the bored respondents are considered the boring ones. These models are clustered based on the relevant keywords indicating aesthetic boredom. Finally, one MP model from each cluster is selected as the sample for the experiment, the next phase of the research (Zafarmand, et al, 2006 b).

4.3. EXPERIMENT

The experiment involves four separated similar tests taken by the Japanese and Iranian subjects in respect of two sample groups of MP used in Iran and Japan. The tool used to obtain the data is a quiz for evaluating the samples in terms of six variables including the main aesthetic factors and the rate of boredom as a dependent factor. Slide images of the selected samples of MP are shown to the subjects. The subjects are asked to look at each sample and mark on the scales in a test document. The Japanese and Persian versions of the test document and its translation in English are shown in Figure 5. The subjects are asked to circle one of the 11 possible points for each variable in the document. Three main variables concerning the aesthetic structure of form are chosen on the basis of the results of the survey.

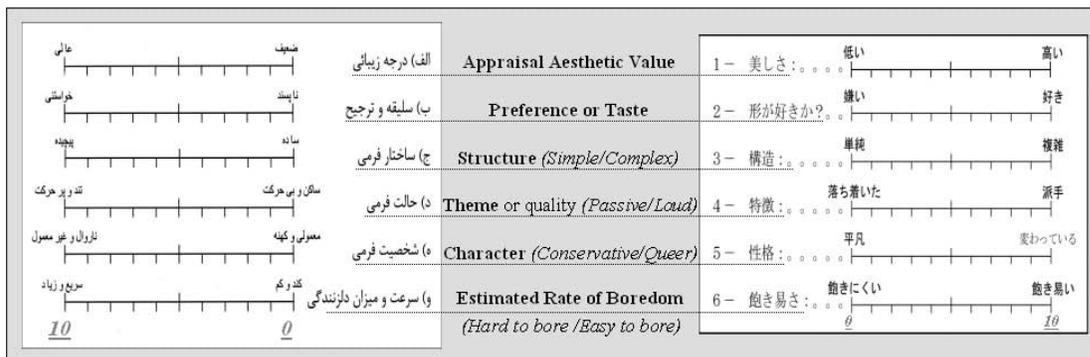


Figure 5: The variables of test and the recurrent part of the document of the experiment in Japanese and Persian language.

Variables 1 and 2 are respectively indicators of aesthetic value and preference. They serve to investigate the influence of the individuals' taste, preference and given aesthetic value on their appraisal of boredom. In order to extract the possible form-structural patterns of aesthetic boredom, three main form-structural variables are used. These three variables are decided upon based on the levels of mutual tendencies identified in the causal items of aesthetic boredom in the survey, the previous phase of the research. Variable 3 indicates the 'structure' of form with two dichotomous attributes, 'very simple' and 'very complex'. Variables 4 and 5 indicate 'theme' or motional quality and contextual 'character' of form, their dichotomous attributes being passive-loud and conservative-queer. Finally, Variable 6 indicating the rate of boredom can be marked from 'hard to bore' to 'easy to bore'.

The samples used in this experiment are selected from among the boring models of MP based on the results of the survey, the second phase of the research. As it has been mentioned in the last section, the MP models used by the respondents who have been bored by their MPs are considered the boring ones. Those models have also been clustered based on the relevant subjects' responses regarding MP aesthetic boredom. One model from each cluster is chosen as the sample. Figure 6 displays the chosen models as the samples of 'MPs used in Japan' (JP MP) for the first and second tests and Figure 7 the samples of 'MPs used in Iran' (IR MP) for the third and fourth tests.



Figure 6: The samples of JP MP for tests 1 and 2.



Figure 7: The samples of IR MP for tests 3 and 4.

To process the data derived from the tests, first, the correlations of the variables are computed. The results of the T-test, the Confidence Intervals of the data and also the normal distributions of the scores of the variables confirm the accuracy of the data and their averages. Therefore, in order to extract the various form-structural patterns of aesthetic boredom and the samples corresponding to each pattern, the average scores can be used. As the 'mid's of the scores of the variables are almost 5, the middle degree of 5 can be considered the neutral. Thus, if the resulting average score of a variable is more or less than 5, it tends to gravitate towards one of the two dichotomous attributes of the variable's value. The samples are also grouped into various form-structural patterns based on the tendencies of the resulting average scores of the variables 3, 4 and 5 in respect of each sample. The average of the rates of boredom of the samples of each pattern is taken as the appraisal of boredom of each pattern. Finally, the patterns and the rates of boredom resulting from two countries' tests are compared (Zafarmand, et al, 2007).

5. RESULTS

5.1. EXPLORATION

The highlights of the results of the exploratory inquiry are visualized as three histograms shown in Figures 8, 9 and 10. The first one is the histogram of product replacement times showing the most frequently replaced product by the respondents (Fig. 8). The second histogram compares the frequency of the respondents' reasons for product replacement (Fig. 9). To compare the product replacement behavior between various age groups, the average times of product replacement and the number of bored respondents are classified in terms of four different age groups in the third histogram (Fig. 10). Overall, the results show that among everyday products the most replaced product and also the most replaced one due to boredom is MP. The youths' tendency to replace the product is higher than those of the other age groups. The respondents who have ever been bored by the products are mostly from the 20-25 age group, i.e. the youths. Therefore, the youths and MP are the most suitable subject and object for the next phases of the fieldwork (Zafarmand, et al, 2006 a).

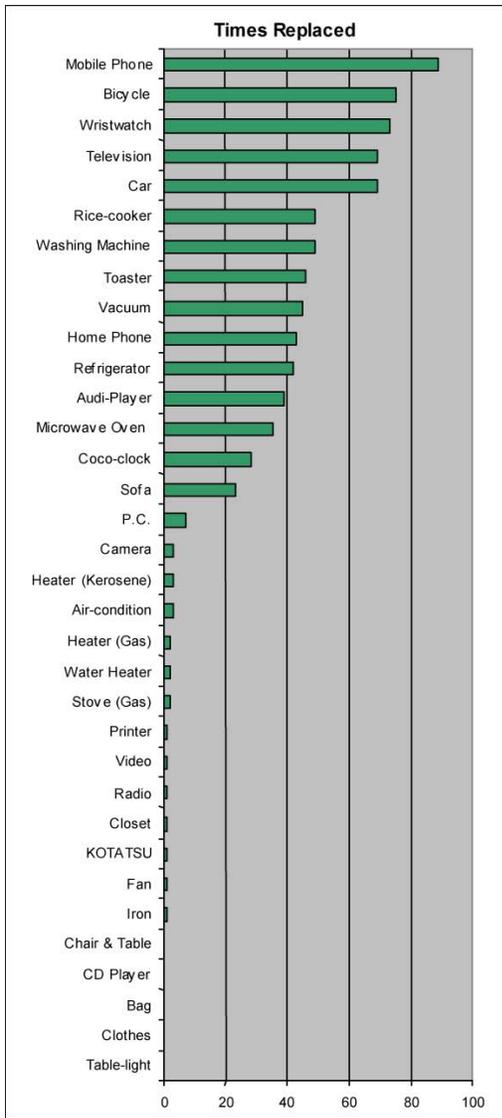


Figure 8: The histogram of replacement times of all replaced products by the respondents.

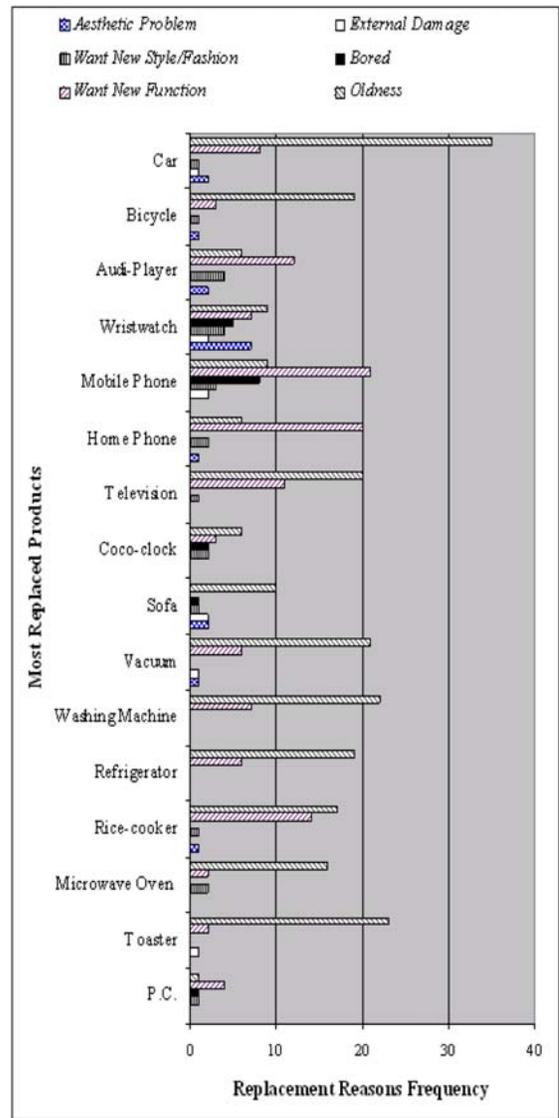


Figure 9: The histogram of the reasons of product replacement assigned by the respondents.

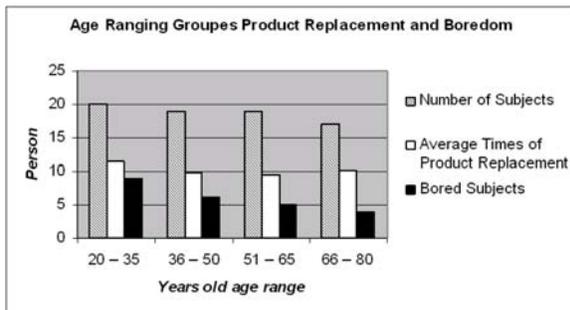


Figure 10: Frequencies of product replacement and boredom in the subjects' age groupings.

5.2. SURVEY

Characteristics of MP that may have caused the respondents' boredom are summarized in 9 items including 'aesthetic elements', 'design characteristic', 'function', 'interface', 'length of use', 'model and brand', 'operation', 'physical character' and 'voice'. The histograms of frequency of all of the above items in the contexts of the Japanese and Iranian respondents' answers are presented in Figures 11 and 12. In both contexts the most frequent items are somehow concerned with product aesthetics.

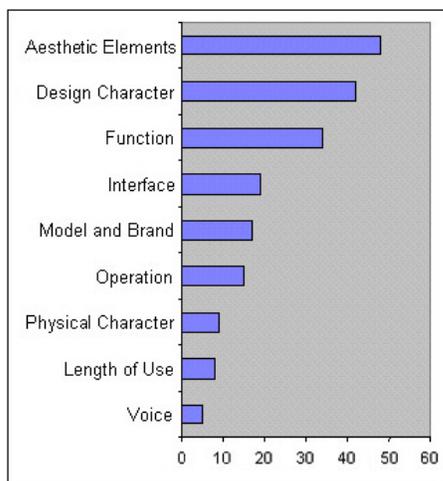


Figure 11: Frequency of the elements causing MP boredom in the Japanese subjects' responses.

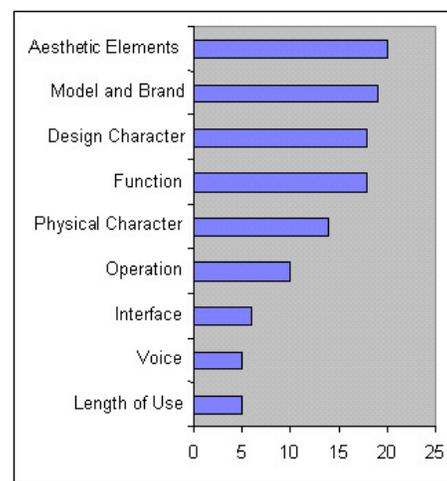


Figure 12: Frequency of the elements causing MP boredom in the Iranian subjects' responses.

The aesthetic causes of MP boredom are summarized in sixteen descriptive items including: bad or disproportionate size; banal; complex; dark; flashy; highly curved; loud; monotony; quiet; rough; similar; strange; thoughtless; toneless; very simple; and vivid color. Since only the data relevant to the bored subjects are used in the analysis, the result reflects the individuals' real experience of boredom. Figures 13 and 14 display the histograms of the frequency of the above-mentioned items in the contexts of Japanese and Iranian bored subjects' answers. The graphs of overall output distribution of these items in both contexts are also presented in Figures 15 and 16 (Zafarmand, et al, 2006 b).

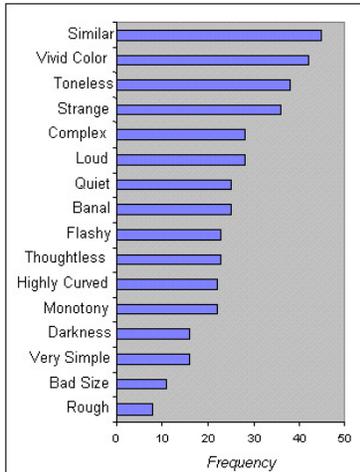


Figure 13: Frequency of the causal items aesthetic boredom in the Japanese subjects' responses.

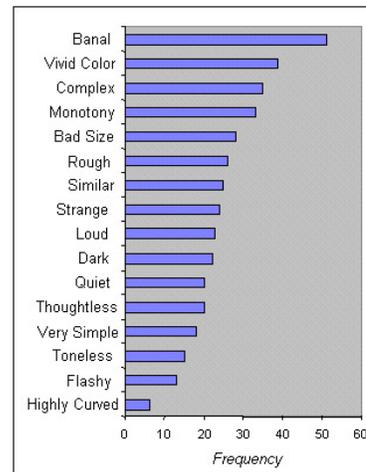


Figure 14: Frequency of the causal items aesthetic boredom in the Iranian subjects' responses.

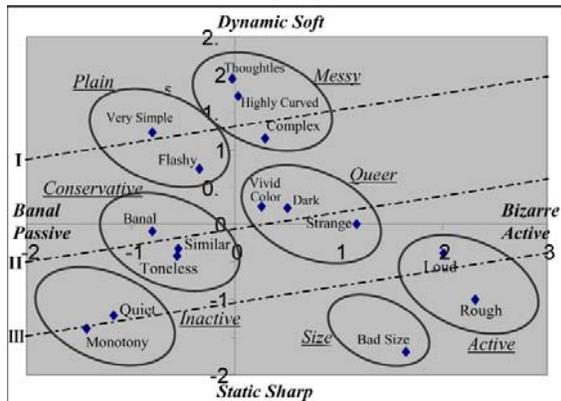


Figure 15: Distribution of the causal items of MP aesthetic boredom in Japan.

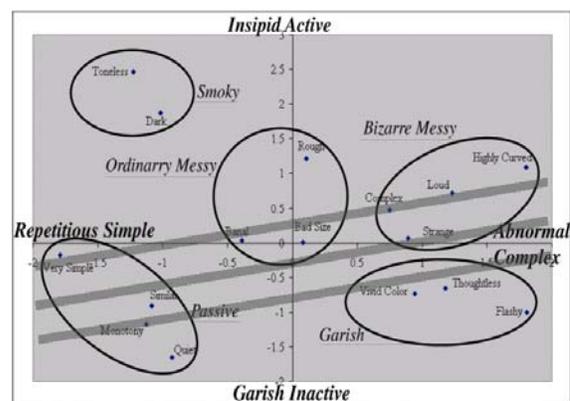


Figure 16: Distribution of the causal items of MP aesthetic boredom in Iran.

The symmetric setting of the dichotomous items and clusters in the graphs, especially the one derived from the Japanese subjects' answers (Fig. 15), makes it possible to distinguish the collective trends of the items in three main levels. These levels are highlighted by three dotted-lines marked from I to III in the relevant graph. As the levels indicate the dichotomous tendencies of 'simple-complex', 'conservative-queer' and 'passive-loud', they are considered: 'structure' of form; 'character' of form from the market context perspective; and 'theme' or motional quality of form (Fig. 17). These levels and their mutual tendencies register the basic indicators of the causal items of aesthetic boredom. Therefore, they represent the main factorial variables governing the possible form-structural patterns that are concerned with MP aesthetic boredom.

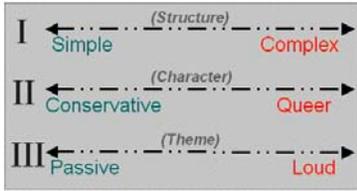


Figure 17: The levels of mutual tendencies of the causal items of aesthetic boredom.

5.3. EXPERIMENT

The resulting correlations show that the positive associations of variable 1 (Aesthetic Value) with variable 2 (Preference) and the negative associations of variable 2 with variable 6 (Appraised Boredom) are the strongest ones in both contexts (Zafarmand, et al, 2007). Considering the results of the T-tests and the normal distribution of the variable scores in the histograms of frequency of the subjects' responses for the variables in respect of each sample within the fourfold tests of the experiment, the average scores of the variables are authentic enough to be used for the projection. Some samples' histograms of variable score frequencies are shown in Figure 18, for instance. In the histograms each line indicates a variable. As the basic result of the tests, the average scores of the six variables of the experiment derived from the Japanese and Iranian subjects' responses to the samples of JP MP and IR MP are sequentially presented in Tables 2, 3, 4 and 5.

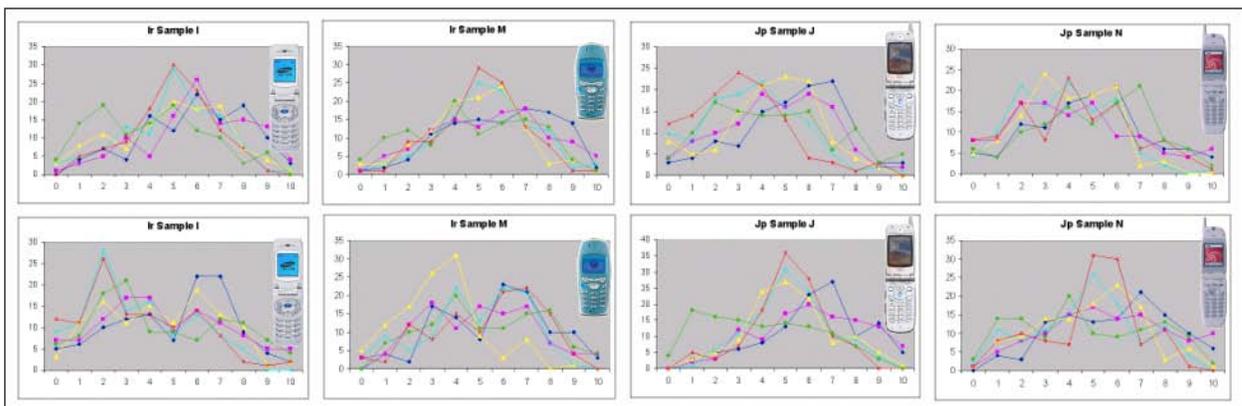


Figure 18: An instance of the samples' histograms of the variables' scores showing the normal distribution of the scores' frequencies.

Sample	V. 1	V. 2	V. 3	V. 4	V. 5	V. 6
A	5.02	4.97	5.32	4.6	4.65	5.36
B	5.1	4.24	4.22	5.17	4.02	5.95
C	4.46	4.01	2.65	2.54	2.96	5.03
D	4.92	4.68	2.32	3.5	3.25	4.76
E	3.73	3.35	4.44	5.04	4.11	6
F	4.33	4.44	3.43	2.38	2.59	4.79
G	5.56	5.27	4.5	4.95	5.11	4.31
H	3.89	4.25	2.86	4.24	4.85	4.87
I	4.01	3.85	3.44	5.17	5.18	5.57
J	5.36	4.67	4.38	3.61	3.1	4.49
K	3.78	2.8	6.33	7.86	7.81	6.49
L	5.71	5.39	5.03	7.47	7.06	5.3
M	5.49	5.48	4.94	5.61	7.17	4.93
N	4.87	4.27	3.85	3.79	4.19	5.01
O	4.22	4.46	7.23	8.21	8.9	6.04

Table 2: Variables' average scores derived from test 1 on JP MP, responded by the Japanese subjects.

Sample	V.1	V.2	V.3	V.4	V.5	V.6
A	4.75	4.63	4.11	3.82	4	5.17
B	5.29	5	4.89	5	4.89	5.29
C	5.55	5.59	3.81	3.86	4.21	4.56
D	2.82	2.69	2.64	2.74	3	7.31
E	3.5	3.37	3.28	3.49	3.13	6.7
F	5.67	5.47	4.68	4.95	4.9	4.59
G	5.87	5.87	5.25	5.47	5.62	4.66
H	3.8	3.82	3.77	3.72	3.5	6.41
I	3.62	3.48	4.04	4.12	4.18	6.63
J	6.24	6.18	5.21	5.22	5.07	3.99
K	4.58	4.81	7.15	7.27	7.18	5.42
L	3.43	3.16	4.25	4.31	5.36	6.71
M	6.57	6.46	5.77	5.94	6.13	3.82
N	5.92	5.66	4.9	4.73	4.92	4.69
O	2.58	2.86	7.21	7.09	7.38	7.86

Table 3: Variables' average scores derived from test 2 on JP MP, responded by the Iranian subjects.

Sample	V. 1	V. 2	V. 3	V. 4	V. 5	V. 6
A	4.38	4.23	4.07	3.9	3.91	5.54
B	4.87	4.81	3.83	4.4	4.61	4.95
C	4.43	4.23	4.36	4.67	4.7	5.47
D	5.49	5.46	3.71	4.29	4.26	4.23
E	4.5	4.43	5.08	5.13	4.92	5.32
F	3.3	3.27	3.42	3.59	3.66	6.46
G	7.01	6.82	5.69	6.04	5.68	2.87
H	3.1	2.95	2.89	3.18	2.73	6.75
I	5.92	6.02	4.91	4.91	4.96	4.07
J	6.96	6.61	7.15	7.48	7.61	3.88
K	6.46	5.99	5.75	6.82	6.34	4.38
L	6.54	6.35	4.64	5.37	5.46	3.77
M	5.95	5.53	4.84	5.38	5.13	4.75
N	4.31	4.15	5.79	5.46	5.09	5.94

Table 4: Variables' average scores derived from test 3 on IR MP, responded by the Iranian subjects.

Sample	V. 1	V. 2	V. 3	V. 4	V. 5	V. 6
A	3.06	3.23	2.99	2.76	2.96	5.89
B	4.31	4.51	1.75	2.74	2.13	4.93
C	5.26	5.13	3.1	5.27	6.38	4.83
D	6.67	6.13	3.31	4.11	5.77	3.61
E	3.64	3.85	4.96	5.73	6.83	5.84
F	4.46	4.66	3.74	4.55	2.66	5.51
G	5.42	4.98	5.72	4.49	5.52	5.01
H	4.68	4.63	2.13	4.9	3.48	4.95
I	5.03	4.6	5.41	3.46	3.47	4.51
J	7.21	6.62	6.69	6.8	8.97	4.46
K	6.69	6.33	4.62	8.45	7.67	5.21
L	4.87	4.38	3.17	3.06	4.71	4.79
M	5.71	4.93	3.36	4.85	5.32	5.28
N	4.13	3.59	4.93	6.29	6.08	5.77

Table 5: Variables' average scores derived from test 4 on IR MP, responded by the Japanese subjects.

To extract the various form-structural patterns from the Japanese and Iranian subjects' responses to the samples of JP MP and IR MP, the samples can be sorted based on the coextension and similarity of tendencies of their gained average scores for variables 3, 4 and 5 to each of the dichotomous attributes of the variables' values. The Samples belonging to each pattern and their relevant variables' average scores are listed in Tables 6, 7, 8, and 9 in respect of the tests. The rate of boredom of each pattern written in parenthesis under the pattern is the average of the resulting average rates of boredom of the samples belonging to the pattern.

Pattern (bore rate)	Variable	No.3	No.4	No.5	No.6 Bore
	Sample				
<i>SPC</i> (4.83)	C	2.65	2.54	2.96	5.03
	D	2.32	3.5	3.25	4.76
	F	3.43	2.38	2.59	4.79
	H	2.86	4.24	4.85	4.87
	J	4.38	3.61	3.1	4.49
	N	3.85	3.79	4.19	5.01
<i>SLQ</i> (5.25)	I	3.44	5.17	5.18	5.57
	M	4.94	5.61	7.17	4.93
<i>SLC</i> (5.98)	B	4.22	5.17	4.02	5.95
	E	4.44	5.04	4.11	6
<i>SPQ</i>	G	4.5	4.95	5.11	4.31
<i>CLQ</i> (5.94)	K	6.33	7.86	7.81	6.49
	L	5.03	7.47	7.06	5.3
	O	7.23	8.21	8.9	6.04
<i>CPC</i>	A	5.32	4.6	4.65	5.36

Table 6: Extracted form-structural patterns from Test 1.

Pattern (bore rate)	Variable	No.3	No.4	No.5	No.6 Bore
	Sample				
<i>SPC</i> (5.71)	A	4.11	3.82	4	5.17
	B	4.89	5	4.89	5.29
	C	3.81	3.86	4.21	4.56
	D	2.64	2.74	3	7.31
	E	3.28	3.49	3.13	6.7
	F	4.68	4.95	4.9	4.59
	H	3.77	3.72	3.5	6.41
	I	4.04	4.12	4.18	6.63
	N	4.9	4.73	4.92	4.69
	<i>SPQ</i>	L	4.25	4.31	5.36
<i>CLQ</i> (5.15)	G	5.25	5.47	5.62	4.66
	J	5.21	5.22	5.07	3.99
	K	7.15	7.27	7.18	5.42
	M	5.77	5.94	6.13	3.82
	O	7.21	7.09	7.38	7.86

Table 7: Extracted form-structural patterns from Test 2.

Pattern (bore rate)	Variable	No.3	No.4	No.5	No.6 Bore	
	Sample					
<i>SPC</i> (5.35)	A	4.07	3.9	3.91	5.54	
	B	3.83	4.4	4.61	4.95	
	C	4.36	4.67	4.7	5.47	
	D	3.71	4.29	4.26	4.23	
	F	3.42	3.59	3.66	6.46	
	H	2.89	3.18	2.73	6.75	
	I	4.91	4.91	4.96	4.07	
	<i>SLQ</i> (4.26)	L	4.64	5.37	5.46	3.77
		M	4.84	5.38	5.13	4.75
<i>CLC</i>	E	5.08	5.13	4.92	5.32	
<i>CLQ</i> (4.27)	G	5.69	6.04	5.68	2.87	
	J	7.15	7.48	7.61	3.88	
	K	5.75	6.82	6.34	4.38	
	N	5.79	5.46	5.09	5.94	

Table 8: Extracted form-structural patterns from Test 3.

Pattern (bore rate)	Variable	No.3	No.4	No.5	No.6 Bore
	Sample				
<i>SPC</i> (5.3)	A	2.99	2.76	2.96	5.89
	B	1.75	2.74	2.13	4.93
	F	3.74	4.55	2.66	5.51
	H	2.13	4.9	3.48	4.95
	L	3.17	3.06	4.71	4.79
<i>CPC</i>	I	5.41	3.46	3.47	4.51
<i>SPQ</i> (4.45)	D	3.31	4.11	5.77	3.61
	M	3.36	4.85	5.32	5.28
<i>CPQ</i>	G	5.72	4.49	5.52	5.01
<i>SLQ</i> (5.41)	C	3.1	5.27	6.38	4.83
	E	4.96	5.73	6.83	5.84
	K	4.62	8.45	7.67	5.21
	N	4.93	6.29	6.08	5.77
<i>CLQ</i>	J	6.69	6.8	8.97	4.46

Table 9: Extracted form-structural patterns from Test 4.

The form-structural patterns extracted from test 1, the Japanese subjects' response to the samples of JP MP, are: 'Simple-Passive-Conservative' (SPC); 'Simple-Loud-Queer' (SLQ); 'Simple-Loud-Conservative' (SLC); 'Simple-Passive-Queer' (SPQ); 'Complex-Loud-Queer' (CLQ); and 'Complex-Passive- Conservative' (CPC). But only the patterns of SPC, SPQ and CLQ can be extracted from the Iranian subjects' response to these samples in test 2. Considering the number

of samples belonging to each pattern, SPC and CLQ being two completely opposite patterns are the most usual form-structural patterns of JP MP in both the Japanese and Iranian subjects' responses.

In respect of the samples of IR MP, the patterns of SPC, SLQ, 'Complex-Loud-Conservative' (CLC) and CLQ can be extracted from the Iranian subjects' response in test 3. Here again SPC and CLQ are the most usual form-structural patterns, since most of the samples are under these two patterns. But the extractable patterns from test 4, the Japanese subjects' response to the samples of IR MP, are SPC, CPC, SPQ, 'Complex-Passive-Queer' (CPQ), SLQ and CLQ. The patterns derived from the Japanese subjects are more varied than the ones derived from the Iranian subjects. The number of samples belonging to each pattern shows that SPC and SLQ, which are two almost opposite patterns, are the most usual form-structural patterns in the Japanese subjects' response to the samples of IR MP.

6. INTERPRETATION

The positive linear relationship between the subjects' 'given aesthetic value' and 'preference' seems to be verified regardless of the samples' original contexts. The negative linear association of the subjects' 'appraisal of boredom' with 'preference' also seems to be verified. These two associations highlight the element of subjectivity in aesthetic boredom and can be considered facts.

The difference in the resulting average scores of the form-structural variables for the same samples in two contexts emphasizes that the descriptions of the formal particulars of an object in the different contexts are not necessarily similar. However, the samples associated with the form-structural pattern of SPC are mostly the same, when considering the results of all the tests. The approximate consensus on such a pattern implies the probability of objectivity of the static sides of the form-structural variables, including simplicity, passivity and conservativeness, whereas their dynamic sides tend to be more relative and uncertain.

The trends of aesthetic boredom in the two countries can be drawn on the basis of the tendencies of the most usual form-structural patterns derived from both contexts towards 'easy to bore' or 'hard to bore' (Fig. 19). The trends of aesthetic boredom in Iran and Japan are virtually opposed to each other. Overall, the form-structural pattern of SPC may easily bore Iranian students and hence seems fit for short-term use in Iran. But the pattern of CLQ does not and hence seems

aesthetically durable and suitable for long-term use in Iran. For Japanese students, on the other hand, the pattern of SPC may not bore easily and hence seems more aesthetically durable and fit for long-term use in Japan, while the pattern of CLQ may do so and hence seems much more suitable for short-term use there. Thus, a simple and passive form may not easily bore the Japanese students, whereas a loud and queer one may do. This difference between the two countries in their trends of aesthetic boredom is probably rooted in the contextual background and the social situation.

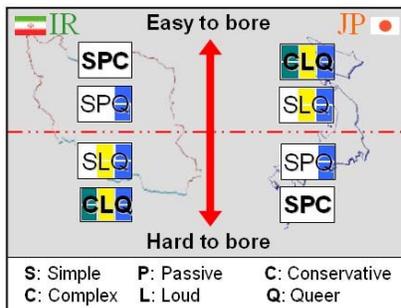


Figure 19: Comparison of the trends of Aesthetic Boredom in Iran and Japan.

However, a few of the samples were excepting to the overall trends of the contexts' aesthetic boredom. Those exceptions, or namely anti-trends, almost belong to the same form-structural patterns and have the same appraisal boredom in both contexts, and hence are in the same level of form-structure and boredom in both countries' contexts. Therefore, the anti-trend samples in a social context, from PAB points of view, are seemingly derived from a general attitude, for instance, about 'Bad and/or good Design'. Accordingly, the anti-trend at the social level may follow the trend in a global scale. These points emphasize that there is a degree of objectivity in PAB.

7. DISCUSSION

As the general results of the survey show, the majority of the respondents have been bored by their MPs. Such a feeling is certainly something developed over considerable time, because everybody purchases his/her favorite product, and as nobody selects a product that bores him/her.

Therefore, as Barbalet (1999) argues, time is phenomenally an essential factor for boredom. This fact makes boredom very different from other emotions. As the literature review on boredom shows, most psychologists believe boredom is not a simple or basic emotion. Moreover, the results prove that the same MP may bore someone while not boring another. This point confirms Rule's idea that the phenomenon of boredom is very complex and deeply individual (Rule, 1998). But, it can be clustered in terms of the individuals' groupings in a social context, at least into the two groupings of 'bored' and 'not-bored' individuals using the same objects.

Same as the previous review on boredom, the above discussion implies the exceptionality of boredom in comparison with other emotions. However, the conceptualized model for the causal structure of boredom seems helpful to clarify aesthetic boredom. The resulting three levels of mutual tendencies of the causal items of aesthetic boringness do not in any way contradict the objective and subjective factors in the proposed conceptual model of boredom highlighted by the red and turquoise ellipses in Figure 20. Rather, these levels as the main indicators of the resulting causal items of aesthetic boredom of MP somehow correspond with the model. The mutual tendencies of these levels generally address two basic but opposite tendencies including 'Activeness' and 'Passivity'. The causal items of aesthetic boredom can also be contextually laid on an axis with a positive and a negative end similarly named 'Activeness' and 'Passivity'. The end of 'activeness' can be related to the object and subject status of 'repetitious' and 'active discomfort'. But the end of 'passivity' is concerned with 'monotonous' and 'low arousal' in the model. Therefore, it seems there are two causally different kinds of boredom, active and passive.

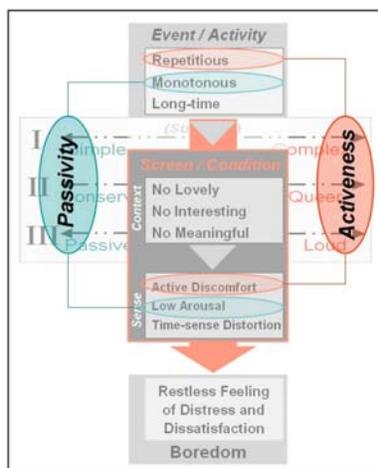


Figure 20: Correspondence of resulted items of aesthetic boringness with the conceptual model of boredom.

As shown below, the results of the experiment don't conflict with the model. A summary of this correspondence of the results of the experiment with the model is displayed in Figure 21.

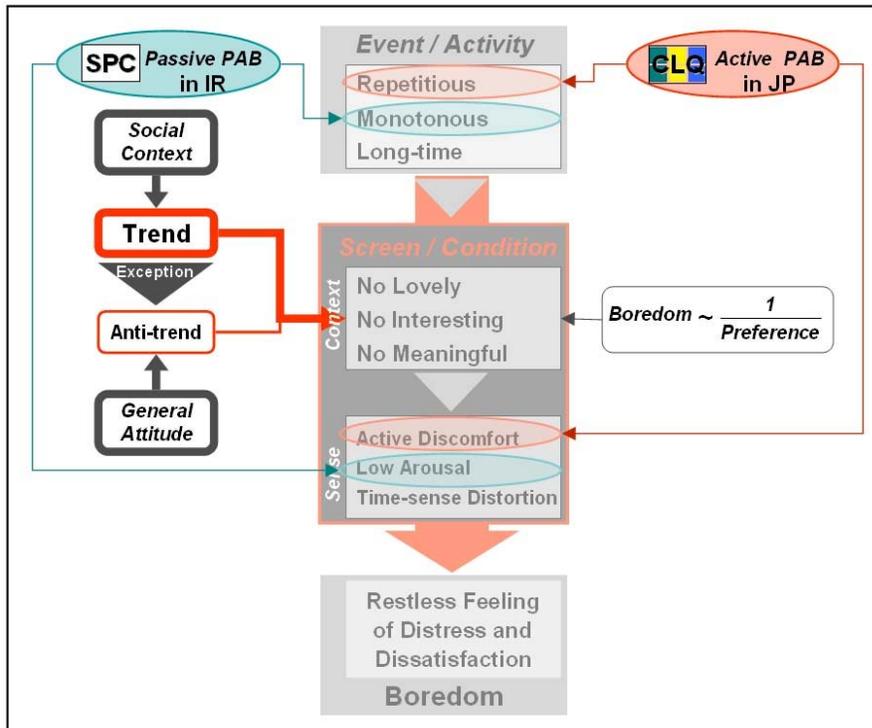


Figure 21: The results of experiment supporting the conceptual model of PAB.

The strong negative association between boredom and preference evidenced by the results of the experiment corresponds with 'not lovely, interesting and/or meaningful' mentioned in the 'context' of the model's screen, which can be a basic condition for PAB in general. As the results of the experiment show, there are totally two kinds of contextually derived causal pattern of PAB, static/passive and dynamic/active. The Japanese subjects' tendency of PAB, the form-structural pattern of CLQ, which may induce 'active discomfort' as one of the subjective conditions of boredom assigned in the model, can be concerned with 'repetitious' event/activity in the object status of the model. But the Iranian subjects' tendency of PAB, the form-structural pattern of SPC corresponds with the objective factor of 'monotonous' event/activity in the model, which may result in 'low arousal' being another subjective condition in the model. This obvious difference clearly shows that the patterns of PAB are very dependent on the context and social trend. In fact, the

conditional factors of 'unlovely event' and 'meaningless activity' causing 'absent of interest' and 'lack of meaningfulness' are both very related to the context. It means each context has its own meaningless or unlovely things that are based on the social background, people's attitude and cultural values in a society. Nevertheless, there are some exceptions partly conflicting with the contextually derived trends. As it has been mentioned in the results of the experiment, those exceptions or 'anti-trends' are seemingly derived from a general attitude, for instance about Bad/Good Design, implying the global trends. It should be considered that the samples of MP used in Iran belong to the global market while the Japanese ones are belonging to a regional market. Comparing the number of the anti-trend samples in both contexts, such a general attitude, as the secondary conditional factor of PAB, seems more effective for the global product than the regional one.

8. CONCLUSION

To inversely approach the issue of product aesthetic durability, the phenomenon of 'the significant reduction of the aesthetic value of a product after continually or repeatedly using or looking at it' called PAB has been analytically studied in this research. 'Boredom' as the opposite of 'satisfaction' is an important issue related to 'product emotions'. But it cannot be considered just a simple or basic emotion, as there is no agreed upon definition of or well-developed instrument for measuring it and there is no comprehensive theory of its causes. However, based on the points extracted from a review of boredom as understood in psychology, etiology and phenomenology, a conceptual model for the causal structure of boredom is established. The model suggests: 'an event or activity, a rather repetitious, monotonous or long-time one, in the case of not being lovely, interesting and/or meaningful and of being associated with an active discomfort, low arousal and/or time-sense distortion, provokes boredom, namely a restless feeling of distress and dissatisfaction'.

The results of the accomplished fieldwork in this research – including three phases - have been applied not only to extracting the causal factors and form-structural patterns of PAB from two different social contexts, but also to verifying the proposed model and developing it for PAB. Based on the findings of the first phase of the fieldwork, the youths and MP are selected as the subject and object for the next phases of the fieldwork. The major outcomes of the second phase show that three levels of mutual tendencies – including 'simple-complex' named as the 'structure', 'conservative-queer' named as the 'character', and 'passive-loud' named as the 'theme' - can be

considered as the main indicators of the causal factors for PAB. The results of the third phase lead to the conclusion, as follows: First, the subjects' aesthetic evaluation of an object is strongly related to their tastes and preferences, whereas their appraisals of boredom have an inverse ratio with their preferences with respect to the object. Second, the SPC form-structural pattern, which tends to easily bore Iranian subjects, is suitable for short-term use in Iran, whereas the CLQ one, which hardly bores them, may promote product aesthetic durability there. But in Japan, almost in contract, the SPC form-structural pattern, which tends not to easily bore the subjects, may promote product aesthetic durability, whereas the CLQ one may easily bore them. Thus, there are totally two kinds of PAB, Passive and Active, derived from the Iranian and Japanese subjects' responses.

This obvious gap between the form-structural patterns and their state of boredom derived from the two different social contexts in respect of the same objects shows, PAB and hence product aesthetic durability are relative and contextually dependent phenomena. This proven fact has strong correspondence with the condition of 'not lovely, interesting and/or meaningful' that is very relative and that depends on the context or social trend. However, there are some exceptions that have almost the same degree of PAB in different contexts, which may follow the global trend that are here called anti-trends. Therefore, there is a degree of objectivity in the condition of the model, 'not lovely, interesting and/or meaningful'. As has been shown and discussed, the results of the fieldwork, while not conflicting with the proposed conceptual model for the causal structure of boredom, are effectively used for expanding the model for PAB. Such a model, however, needs to be supported by further fieldwork to override the limitations and thence be capable for a solid generalization for the phenomenon of product boredom. As a proposal for the future, further fieldwork may focus on other age groups, MP functions, other contexts and/or other product types.

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