

Applying Kansei Engineering method on investigating mobile phone's brand image amongst Iranian young designers

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Abstract: As Walter Landor declared “Products are made in the factory, but brands are created in the mind”, brand image in the customer's mind, plays an important role in success of products in today's high-competitive market. With this in mind, the aim of this research is to investigate the brand image of top-selling mobile phone manufacturers amongst a group of young design students in the telecommunication sector of Iranian local market. Iranian population constitutes one of the youngest countries in the world; on the other hand the young designers are generally considered as ICT-savvy individuals that steer the market inclinations. Therefore, this segment of users has been selected as the target group. To achieve the aim of this study, the Kansei Engineering method is utilized for verbalizing the associated qualities of the brand images. To find customer's perception of brand images, 6 brands were chosen respectively as followed in alphabetical order: Apple, HTC, LG, Nokia, Samsung and Sony. According to their relevance for brand characteristics, 30 Kansei pair-words have been selected. In order to analyze the obtained data, one way analysis of variance and factor analysis methods has been used to find the internal relation between the image and the aforementioned Kansei words which are corresponding to psychological mapping of the subject mindset towards these brands. Finally the results of this study can contribute to the market performance of these brands as well as developing a more realistic picture of demographic data of the Iranian young designers.

Keywords: Kansei Engineering, Brand Image, Customer perception, Mobile Phone Market

1. INTRODUCTION TO THE STUDY

In marketing, as one of the main factors of marketing mix, debates related to mental image of a company among different target groups and their emotional responses toward brands, play an important role. Corporates awareness of their brand image among potential and actual audiences in the market, is a valuable input that reveals the compliance rates of their branding strategies and the real facts in the market. This can help companies to define organizational perspectives and strategic plans and draw new horizons for their short term and long term activities. For extraction of mentioned users' emotional reactions to a brand, a specific method is needed for quantifying the qualitative concepts and attributes. One of the suitable methods for extracting and converting the customers' mental and even unconscious feelings and reactions towards brands is Kansei Engineering which is developed in Japan. By applying this method, it would be possible to study and evaluate the emotional reactions in counter with an artifact. Kansei as Nagamachi (2001) stated "is an individual's subjective impression from a certain artifact, environment or situation using all the senses of sight, hearing, feeling, smell, taste as well as recognition".

From philosophical point of view and based on Schütte (2005), Kansei is seen as sensual intuition providing the material for understanding, and through this the mental ability of experiencing affective values like feeling, emotion and desire. Nagamura (1991) brings this into a neuro-physiological context. According to his studies, Kansei is processed by the right half of the brain, processing analogue and fuzzy data while the understanding possessing logical speculative nature is (reason) treated by the left brain side, whose specialization is digital data processing.

Also Lee et al. (2002) studied on 'Kansei' and its counterpart 'Chisei'. Although the concept of Kansei is closely connected to affective, emotional values of human beings, Chisei "works to increase the knowledge or understanding which is measured by verbal descriptions of logical facts" (Lee et al., 2002). Both have in common that they are triggered by a sensory input, which is mapped from both perspectives. The Kansei then builds affection, feelings and emotions, which in turn lead to creativity; the Chisei or reasoning builds logics, recognition and understanding which then become knowledge. Figure 1 displays the ideas of Kansei and Chisei.

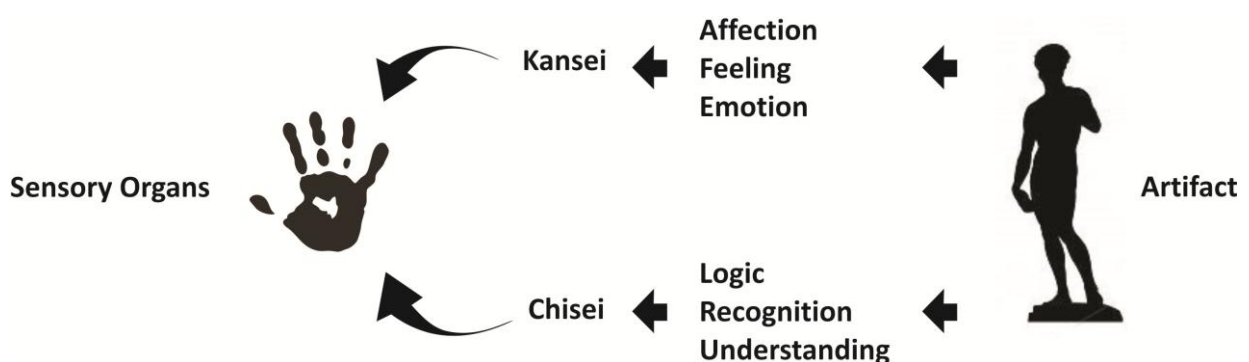


Figure 1: Kansei and Chisei-Based on Schütte (2005)

A practical approach to Kansei in Design world is "Kansei Engineering". Nagamachi was a pioneer researcher in developing of Kansei Engineering in an academic context. His approach was to develop Kansei Engineering as a user-centered approach for translating the human feelings and emotions to tangible outcomes in terms of features and attributes. So, the Kansei which is created in human brain in counter with external stimuli could be measured by Kansei Engineering and

inserted into a system which gives recommendations for Design solutions such as brands, products, etc. The authors named this process as "360° Kansei chain". Figure 2 presents this idea.

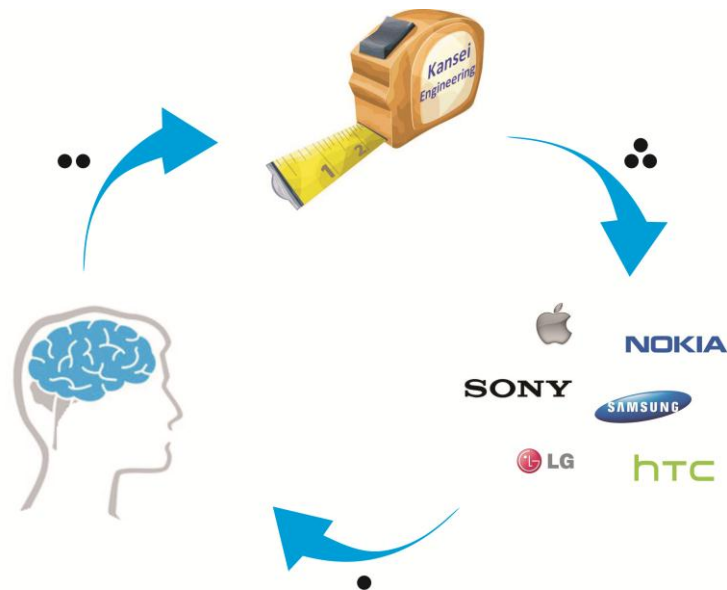


Figure 2: A 360° Kansei chain in branding research methodology

In this study, the mental image of six best-selling mobile phone brands in Iran's market, investigated and analyzed by using Kansei Engineering method. Due to the lack of access to official information and detailed statistics on sales of mobile phones in Iran's market, these six brands, were selected based on a comparative study between various news and information available in some local media such as newspapers and official websites. The figure 3, represents the six brands that were studied in this research.



Figure 3: Six best-selling mobile phone brands in Iran's market (In alphabetical order)

Then, based on some library researches and reviewing previous studies in this field and also with some Focus-groups sessions between the authors and number of Iranian designers and Design professors, several pair-words for brand images, were extracted. After refining these words, finally authors chose 30 Kansei pair-words. Table 1 shows the selected Kansei words.

At the next phase, to evaluate Kansei-words defined in previous phase, the Semantic Differential Method (SD) was used. Each pair-word, were evaluated by an audience for all six selected brands with five degrees valuation method via paper-based questionnaires. Using five degrees in questionnaires, simplified the valuation and evaluation process both for audiences and authors.

In this questionnaire, the participants were asked to evaluate each pair-word separately for each referenced brand, by choosing one of the 5-degree choices. Figure 4 shows a sample of mentioned Semantic Differential method in questionnaires. The target group studied in this

research was one hundred young Industrial Design students. The main reason for choosing these types of audiences was their more relative awareness and sensibility on Design and manufacturing trends of mobile phones. Also according to the existing facilities, the authors preferred to study among a uniform group of mobile phone users. Obviously, the results of this study indicate brand image of this particular segment of the Iran's handset market that enthusiastically follow the latest news and information about different brands and their activities, events and products.

Table 1: Kansei words for evaluating brand images

NO.	Kansei Words	NO.	Kansei Words
1	Funny/Not Funny	16	Exciting/Boring
2	Feminine/Masculine	17	Strong/Weak
3	Future-oriented/Past-oriented	18	Aged/Young
4	Reliable/Unreliable	19	Plain/Gorgeous
5	Durable /Ephemeral	20	Avant-garde/Conservative
6	Experienced/Inexperienced	21	Profound/Superficial
7	Pioneer/Old-fashioned	22	Stable/Unstable
8	Formal/Casual	23	Rich/Poor
9	Modern/Traditional	24	Senior/Junior
10	Excellent/Ordinary	25	Cheap/Expensive
11	Delicate/Rough	26	Trustworthy/Untrustworthy
12	Rational/Emotional	27	Harsh/Soft
13	Innovative/Imitative	28	Classic/Fashionable
14	Credible/Not Credible	29	Global/Local
15	Truthful/Exaggerated	30	Supportive/Unsupportive



Figure 4: A sample of 5-degree Semantic Differential method used in this study

The demographics construction of audiences was included 50 female and 50 male Design students. Six sheets with a specific logo on top of it and 30 pair-words in its bottom, were given to each participant without prioritization and in a random order. This randomization was because of minimizing the possible influence of pre-defined and specific order of brands to the results of the study. After collecting all questionnaires, data extraction phase, was done for each one.

2. RESULTS AND DISCUSSION

This study used a one-way analysis of variance (ANOVA) to examine whether differences existed between the evaluations of the different 6 brands and differences in the evaluations from one brand to another were significant. For post-hoc pair-wise comparisons, we used the Tukey-Kramer Honestly Significantly Different (HSD) test. Table 2 shows the ANOVA results. One-way ANOVA

indicated that differences between 6 brands were significant ($p < 0.0001$). The results of this table clearly show that at least there are significant differences between two brands.

Table 2: The ANOVA results

	SS	df	MS	F	Sig.
Between Groups	68.201	5	13.64	66.188	0
Within Groups	118.703	576	0.206		
Total	186.904	581			

Results of the HSD test (Table 3) revealed a significant difference between the apple and LG, and ($p < 0.05$). On the other hand, the apple brand received the highest evaluations for all questions.

Table 3: Results of the HSD test

	N	Subset for alpha = .05			
		1	2	3	4
LG	100	2.84			
Samsung	100		3.15		
HTC	100			3.38	
Nokia	100			3.42	
Sony	100			3.52	
Apple	100				3.96

Factor analysis has been used in order to find psychological structure of Kansei space. The results of factor analysis are structured by 3 factors (Table 4). In this Table, the bold numbers indicate the groups of associates with factors 1-3. According to Kansei words in first factor, this Kansei space could be represented as 'Brand Generic Attributes'. The Kansei space of second factor could be represented as 'Brand Pioneering Qualities'. The third factor consists of Feminine/Masculine, and Funny/Not Funny, and therefore it could be represented as 'Brand Genus Properties' Kansei space. These three factors altogether explains 60.55% of the total data.

After extracting data from questionnaires and quantifying them, some charts were drawn for easier analyzing of the results. Comparing these graphs revealed clearly the similarities and differences in brand image among girls and boys. Figures 5 and 6 summarize the overall outcomes of this study in the form of two separate charts for boys and girls. Also, based on these charts and diagrams, the following tips on mobile phone's brand image amongst Iranian young designers were extracted for six best-selling brands in Iran's telecommunication market. This study showed that brands which had not positioned themselves clearly in specific market segment without any competitive advantage would have different and even contradictory brand image between male and female audiences. For example based on the results of the study, there were different mental images between LG and HTC brands among girls and boys. Although HTC is one the 3 preferred brands for girls in the most brand image attributes, the findings showed the reverse brand image for boys. As it is shown in diagrams, HTC is not the favorite brand for boys. Also the same clear difference in brand image between boys and girls, could be mark out for LG brand. For boys, the

brand image of LG was relatively more positive than girls. In most brand image attributes, girls had negative response to LG brand in contrast with boys.

Table 4: The Factor loading of the 30 Kansei words using three factors

Rotated Component Matrix			
	Component		
	1	2	3
Senior/Junior	0.828	-0.066	-0.009
Trustworthy/Untrustworthy	0.82	0.144	0.012
Credible/Not Credible	0.815	0.251	0.042
Experienced/Inexperienced	0.815	0.213	-0.031
Reliable/Unreliable	0.793	0.21	0.006
Stable/Unstable	0.779	0.159	-0.122
Durable /Ephemeral	0.765	0.055	-0.111
Truthful/Exaggerated	0.747	0.115	-0.124
Strong/Weak	0.737	0.333	-0.096
Profound/Superficial	0.717	0.255	0.02
Excellent/Ordinary	0.697	0.499	0.032
Innovative/Imitative	0.669	0.367	0.152
Rich/Poor	0.665	0.42	-0.026
Formal/Casual	0.639	0.072	-0.266
Global/Local	0.65	0.195	0.12
Pioneer/Old-fashioned	0.491	0.703	0.083
Modern/Traditional	0.46	0.701	0.076
Future-oriented/Past-oriented	0.45	0.647	0.221
Exciting/Boring	0.482	0.639	0.125
Avant-garde/Conservative	0.341	0.589	0.022
Delicate/Rough	0.162	0.502	0.512
Feminine/Masculine	-0.099	0.115	0.802
Funny/Not Funny	0.308	0.37	0.603
Rational/Emotional	0.435	0.015	-0.608
Harsh/Soft	0.343	-0.425	-0.432
Aged/Young	-0.047	-0.764	-0.189
Classic/Fashionable	0.25	-0.718	-0.059
Cheap/Expensive	-0.486	-0.516	-0.011
Plain/Gorgeous	-0.146	-0.501	-0.074
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			

Also, as participants' first selection, Apple was the most favorite brand for girls than boys; So, as the study proved that, Apple is one of the most feminine brands among 6 brands. Results revealed that Apple was the most feminine and Nokia was the most masculine brands. In contrary with Apple, LG brand had the least attractiveness for both boys and girls. On the other hand, according to the findings of this study, Sony was more popular for boys while HTC is more favorable for girls; So, Sony had a masculine brand image even though HTC had feminine image. From practical point of view, the core message of this result was that Sony and LG could have more focus on

tastes and preferences of females while HTC could concentrate on male interests for expansion of their popularity. Another outcome of this study was that girls had more emotional and intense preferences than boys with more logical and moderate responses to different brands.

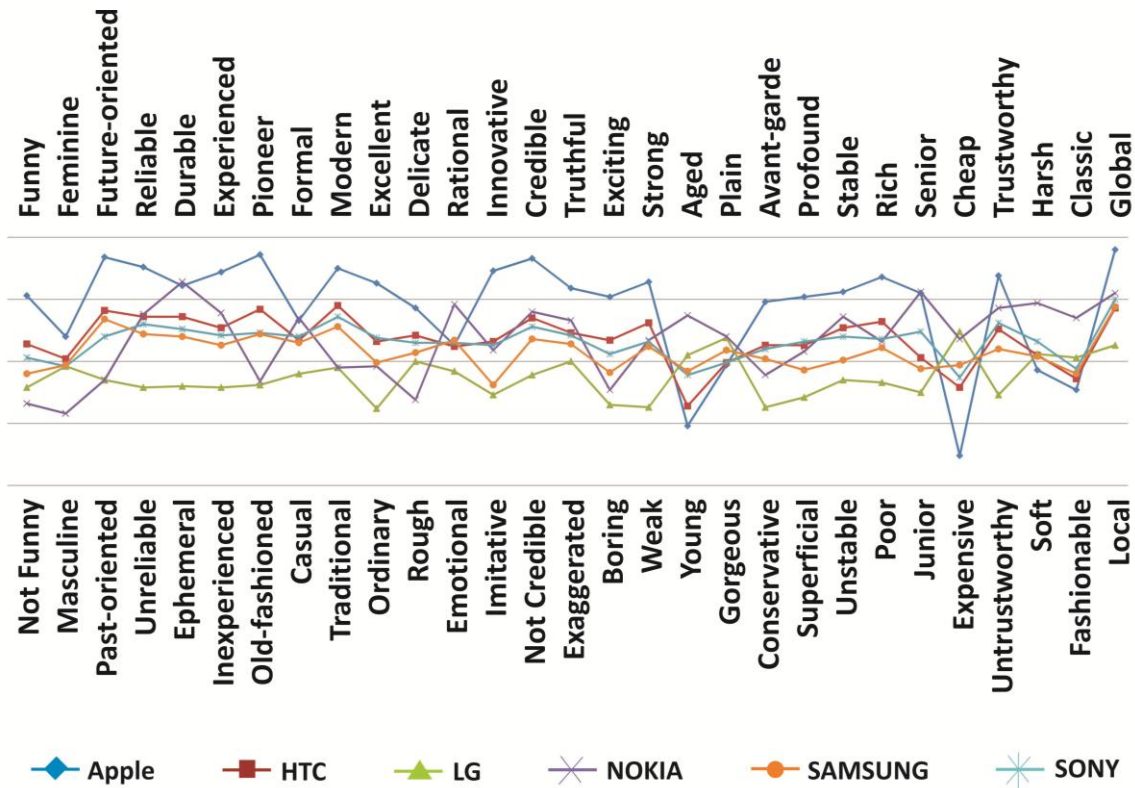


Figure 5: An overall results of the study for girls

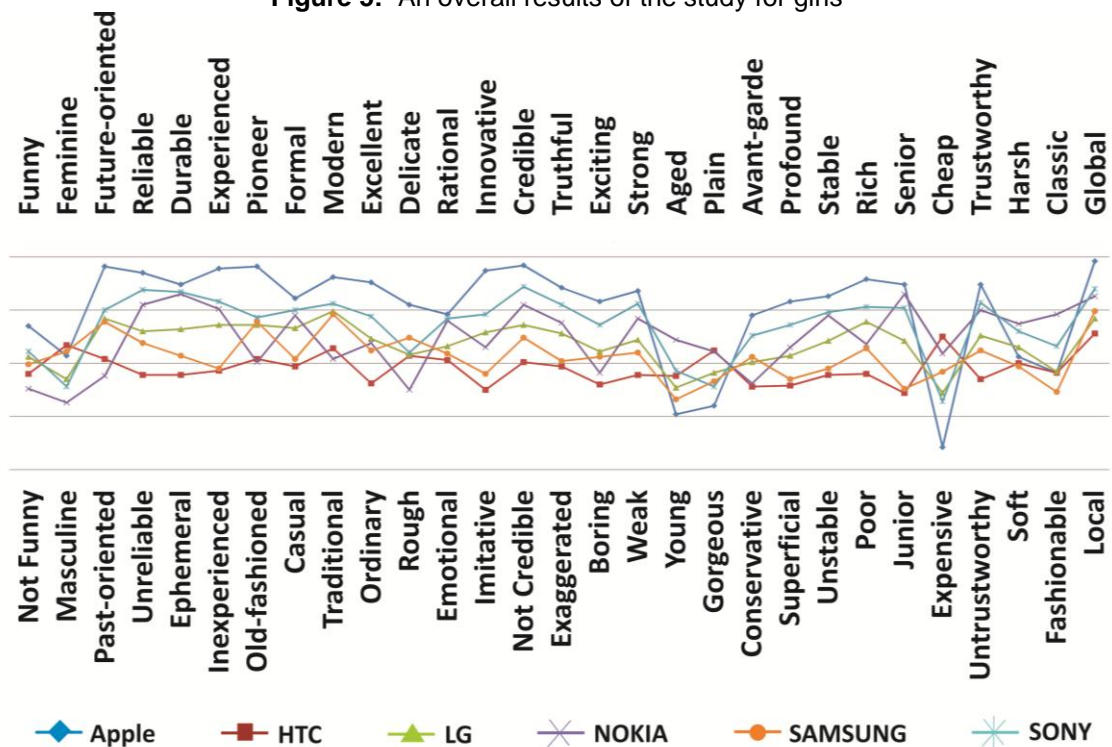


Figure 6: An overall results of the study for boys

Due to the large number of characteristics associated with the brand image, a summary for the results visualized based on selected ten pair-Kansei words in figure 7. As it comes from this figure, meaningful difference in mental image of girls and boys on mobile phone brands, were detectable. But what was clear, stable brand image of Apple almost in every pair-word among girls and boys. According to the survey results, Apple had the most powerful brand image in mobile phone's market amongst Iranian young designers.

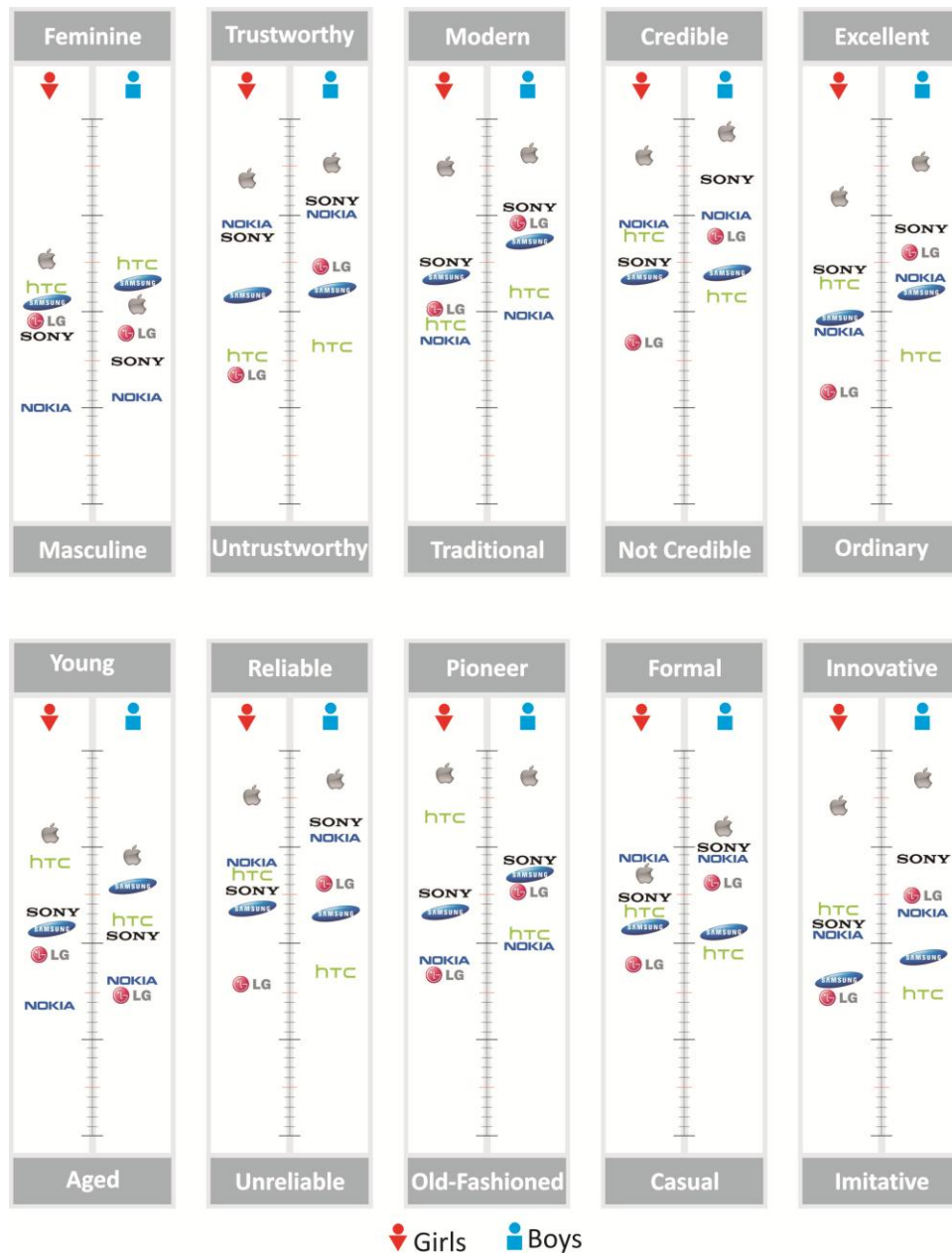


Figure 7: A visualized results of the study for selected Kansei words conclusion

3. CONCLUSION

The results of this study showed that in Iran's mobile phone's market, there is meaningful difference in brand images among boys and girls. Using Kansei Engineering and the Semantic Differentiation methods, revealed these differences well. On the other hand, it was found that

brands with specific and planned strategies in market, have more sustainable and identical brand image among boys and girls. The result of factor analysis demonstrates that brand image are structured by three factors; 'Brand Generic Attributes', 'Brand Pioneering Qualities', and 'Brand Genus Properties'.

From strategic point of view, this study indicated the typical strengths, weaknesses, opportunities and threats ahead of studied brands. Also it exposed some tips and hints for these brands for empowering their brand images in the market. So, the outcomes of this survey could be used by all six studied brands for developing strategies, new products, marketing campaigns and market segmentation projects at the near future.

At the future, this research could be done for broader target groups in Iran's mobile phone market for extracting the same data and results. Also the same studies could be arranged in further markets such as home appliances, computer products, audio and video products, home furniture, etc. for analyzing the brand image of active companies in mentioned markets.

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BIOGRAPHY

Mehdi A.Fallah received MFA degree in Industrial Design from University of Tehran, Faculty of Fine Arts in 2003. Since then he is faculty member in Design Department, University of Art, Tehran, Iran. He has published three books related to Design Fundamentals. Currently he is educational counselor and official representative of Italian Domus Academy in Iran and responsible for running DA international Design workshops in the country. His research interests include Design Foundation and Design Strategy. Also he has had some Design practices in Street Furniture and Branding Design.

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