

Emotional Product Design and Perceived Brand Emotion

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Abstract

Product aesthetics give people a sense of beauty and impression and encourages them to consume and collect. Companies employ shapes that are both emotionally appealing and compatible with the brand's image of aesthetics in generating favorable consumer responses. Existing research on branding and product design has demonstrated the importance of emotions. Consumers can base their evaluations of a brand extension on their subjective-affective reactions toward products. Many products are designed to attract consumers, and considerable literature exists on product-design methods. However, few studies have offered specific guidance on how to design products with emotional appeal to link brands and to initiate consumer emotions. Using a recognized brand and products as an example, we argue that emotional product design strengthens brand emotion and is appealing to consumers. We explored brand and product emotion by conducting a consumer-emotion survey and determined that (a) emotional-brand products have emotional product design characteristics, particularly the beauty characteristic; (b) emotional product design characteristics influence the brand emotion (repurchase, willingness to recommend, attachment, positive emotion, and passion) of consumers; (c) emotional-brand products have simple shapes, pure colors, and natural textures that exude a sense of design, fashion, and a pleasing appearance of emotional product design. The findings of this study support the future development and growth of emotional product design.

Keywords

Product Design; Emotional Product; Brand Emotion

Introduction

Most people choose one global brand over another because of brand awareness and global brand competition. The current trend and future challenges in the market are that consumers are influenced by

product impressions. Pawle and Cooper (2006) observed that marketing research companies have recently begun offering studies on consumer attitudes toward brands. Roberts first proposed brand love in 2004, a topic that has attracted growing interest (Roberts, 2004). Martin (2005) asserted that although design is a small part of brand strategy, it can create a visible differentiation for products and shape customer perceptions. American design expert Norman (2004) stated that affective/emotional factors are the ultimate determiner of the success or failure of product design. Lin and Chang (2004) claimed that the product is the most direct medium connecting designers and consumers, and that product design influences consumers to recognize the designer's creativity. Wang, Chen, Hu, and Ye (2008) proposed that brand is abstract and spiritual, and is the sum of all consumer feelings toward products, reflecting their mood, knowledge, attitudes, and behaviors. Therefore, emotional product design characteristics and brand emotion are crucial. Based on previous studies, we investigated consumer opinions about the interaction between emotional product design and brand emotion and explored the role emotion plays in brand and product design through emotion and subjective evaluation experiments. To explore this issue objectively, we employed a real case to achieve in-depth understanding. Mi (2012) proposed that participants thought classical marketing and advertisements were an unimportant strategy to Muji (無印良品 Mujirushi Ryohin), in which the design philosophy of Muji is "no-brand." Therefore, we chose Muji and its products to examine the attributes of emotional product design that affect brand emotion, using a questionnaire. Muji is a recognized Japanese corporation that sells a wide array of daily life goods.

Muji's natural and simple design complements modern lifestyles perfectly. Faithful to this philosophy, all Muji products appear on store shelves in simple packaging, bearing only product-related information and a price tag (MUJI holding AG, 2014).

We explored brand and product emotion by analyzing consumer emotion survey responses and feedback provided by targeted consumers regarding Muji's emotional product design and brand emotion. This study was intended to answer three research questions:

1. What are the characteristics of Muji's emotional product design?
2. How do consumers perceive Muji as an emotional brand?
3. What is the relationship between Muji's emotional product design and brand emotion?

Muji was established in the early 1980's as a global brand. In this competitive market, Muji products have definite advantages for maintaining a long-term brand. We investigated how product emotional design affects brand emotion from the consumer viewpoint to clarify why consumers prefer Muji products.

Literature Review

Emotional Design

When product safety and comfort have been satisfied, emphasis can shift toward the decorative, emotional, and symbolic attributes of design (Crilly, Moultrie, & Clarkson, 2004). Do attractive or beauty products use better than others? In his review of experimental studies, Tractinsky (1997) observed extremely strong correlations between perceived interface aesthetics and a priori perceived ease of system use. McLoone et al. (2012) proposed that successful product design meets or exceeds the emotional needs of users beyond utility and quality. Incorporating "feeling" into product design to present the emotional communication of user experiences has become a design trend of the twenty first century. Consequently, "design for feeling" has become a key factor for innovative products (Ko, Lin, & Lin, 2009). Landy and Sigall (1974) claimed that the relationship between product form and perceived functional performance exhibits an interesting parallel in the social psychology of personal appearance. Therefore, an optimal product is a craft that opens a discourse with people through its sensation-evoking image and inspires them. Norman (2004) proposed that what the product offers

the user assists the user in understanding the product. Appearance attributes provide the consumer with an overall impression of the product and are more actionable and informative than are physical properties. Designers use appearance attributes in briefings or product-evaluation studies to assess whether consumers actually perceive the meanings the designer intended to convey.

"Qualia" is a Latin adjective that refers to quality and comprises five elements: attractiveness, beauty, creativity, delicacy, and engineering. Mandler (2005) proposed that qualia are features or representations of objects that are not intentional or intentionally determined, and that sensory experiences have certain similar characteristics. The sense of difference lies in quality, which includes attractiveness, beauty, and creativity, in which content renders the product surface. The Ministry of Economic Affairs in Taiwan promotes qualia for small and medium enterprises, integrating both cultural and creative-product characteristics. The plan proposes that enterprises add value to products from qualia to enable the consumer to experience the product value (Lin, D.-G., 2012). Bermond (2008) stated that emotional qualia are the phenomenological representations of the end products of appraisal processes. The characteristics of qualia determined by integrating the product characteristics of Ashby and Johnson (2003) are shown in Figure 1. Attractiveness, beauty, and creativity belong to the emotional condition of the product "psychology"; delicacy and engineering belong to the rational condition of the product "physiology." Therefore, qualia products involve rational conditions for consumer use but do not neglect emotional appeal.

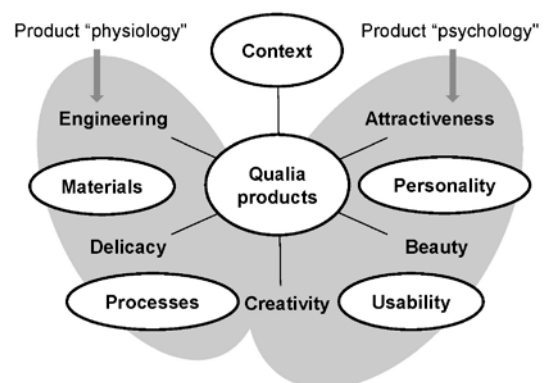


FIG. 1 PRODUCT CHARACTER OF QUALIA PRODUCTS

Based on a literature review and the motivation it provided, we explored the product design of emotion-oriented products.

Brand Emotion

Roberts (2004) indicated that emotional branding is a consumer-centric, relational, and story-driven approach to forging deep and enduring affective bonds between consumers and brands. Emotional branding involves senses and emotions that form a deep, lasting, intimate, emotional connection to the brand that transcends material satisfaction; thus people enjoy products with matching brand labels more than those with mismatching brand labels (Morrison & Crane, 2007; Rahinel & Redden, 2013). Lynch and De Chernatony (2004) proposed that the development and communication of emotional-brand values might enhance the potential for value creation and be a means of developing a sustainable differential advantage. Wang, Chen, Hu, and Ye (2008) suggested that brand strengthens the consumer relationship and deepens it into a friendship to maintain consumer brand loyalty. Kim, Park, and Jeong (2004) stated that customer loyalty combines customers’ favorable attitudes and repurchase behavior. Bergkvist and Bech-Larsen (2010) proposed that brand loyalty and active engagement are outcomes of brand love. Brand love includes passion for the brand, attachment to the brand, positive evaluation of the brand, positive emotions in response to the brand, and declarations of love for the brand. Brand love is a positive brand emotion encompassing brand loyalty that creates functional, symbolic, and experiential value associated with consumer awareness (Park, Jaworski, & MacInnis, 1986). Carroll and Ahuvia (2006) proposed that the brand love of consumers is an overwhelming emotion attributed to a particular brand, which includes attachment, positive emotion, and passion. We integrated the perspectives of Kim, Park, and Jeong (2004) and Carroll and Ahuvia (2006) to perform attribute assessments of the brand-emotion questionnaire and identify consumer feelings toward a brand (Figure 2). We drew conclusions based on a literature review, which provided the motivation for this study.



FIG. 2 FEATURES OF BRAND EMOTION

Methodology






We conducted a case study focused on the recognized brand Muji. The product-emotion experiment and the brand form comprised two stages. Stage 1 consisted of a survey on the strength of emotion derived from product form. Stage 2 consisted of a survey on the strength of emotion derived from a brand.

Stage 1: Emotion Evaluation of Products

Directly measuring the psychological response in a person’s emotional interactions with product form is difficult. Therefore, in Stage 1, an experiment was conducted to determine how participants perceived emotion in product form.

- **Participants**
We invited 109 undergraduates with a background in design to participate in this study.
- **Materials**
The materials consisted of 5 hard copies of images of a wall mounted CD player, a Beechwood clock, an ultrasonic fragrance spray, a taxi watch, and a lightweight folding portable speaker, all of which are popular Muji products (Table 1).

TABLE 1 PRODUCTS SAMPLES USED IN THE PRODUCT EMOTIONAL DESIGN CHARACTERISTICS QUESTIONNAIRE SURVEY

Code	Product name	Product image
P1	Wall Mounted CD Player	
P2	Beech Alarm Clock	
P3	Ultrasonic fragrance spray	
P4	Taxi Watch	
P5	Lightweight folding portable speaker	

(Products from MUJI Ltd.,)

- **Questionnaire**
The emotional product design characteristics questionnaire was adapted from Lin (2012).

Participants were asked to evaluate whether the product images conveyed a feeling. The questions are listed in Table 2.

TABLE 2 ATTRIBUTE ASSESSMENTS OF THE PRODUCT EMOTIONAL DESIGN CHARACTERISTICS QUESTIONNAIRE SURVEY

Attribute assessments	Code	
Product attractiveness	PQ1	This product can convey cultural meaning.
	PQ2	This product can impress people.
	PQ3	This product has a fashion sense.
Product beauty	PQ4	This product looks perfect proportion.
	PQ5	This product has a sense of design.
	PQ6	This product has pleasing appearance.
Product creativity	PQ7	This product is a creative product.
	PQ8	This product has a story.
	PQ9	This product has a clever use of materials.

(Adapted from Lin, D.-G., 2012)

- **Semantic scale**
A 7-point Likert scale was used in the experiment, in which 1 point indicated the sample did not have emotional appeal or did not feel good, 4 indicated the sample was moderate in emotional appeal or felt fairly comfortable, and 7 indicated the sample possessed strong emotional appeal or looked or felt extremely good.

Stage 2: Emotional Evaluation of the Brand

Directly measuring the psychological response of a person’s emotional interactions with a brand is difficult. Therefore, in Stage 2, an experiment was conducted to determine how participants perceived emotion in the brand.

- **Participants**
The authors invited 109 undergraduates with a background in design to participate in this study.
- **Materials**
The material is the brand image from Muji.
- **Questionnaire**
The brand-emotion questionnaire was adapted from Kim, Park, and Jeong (2004) and Carroll and Ahuvia (2006). Participants were asked to evaluate whether the brand images conveyed a feeling. The questions are listed in Table 3.

TABLE 3 ATTRIBUTE ASSESSMENTS OF THE BRAND EMOTION QUESTIONNAIRE SURVEY

Attribute assessments	Code	
repurchase	BQ1	I will continue to buy the products of this brand.
recommend	BQ2	This is a good brand, and I would recommend it to other people.
attachment	BQ3	This brand is my first choice when buying related products.
positive emotion	BQ4	My love for this brand is incomparable to the other brand.
passion	BQ5	This brand is very appealing to me.

(Kim, Park and Jeong, 2004; Carroll & Ahuvia, 2006)

- **Semantic scale**
A 7-point Likert scale was used in the experiment, in which 1 point indicated the sample did not have emotional appeal or did not look or feel good, 4 indicated the sample was moderate in its emotional appeal or looked or felt fairly comfortable, and 7 indicated that the sample possessed strong emotional appeal or looked or felt extremely good.

Reliability and Factor Loadings

The attribute assessments of the product emotional-design characteristics questionnaire are attractiveness (PQ1, 2, 3), beauty (PQ4, 5, 6), and creativity (PQ7, 8, 9). Each dimension and the overall scale achieved a substantial interrater reliability of .80 ($p < .001$), and the matrix of factor loadings was greater than .85 (Tables 4, 5, and 6).

TABLE 4 RELIABILITY OF ATTRACTIVENESS OF PRODUCT EMOTIONAL DESIGN CHARACTERISTICS QUESTIONNAIRE

Code	Dimension	Cronbach α
PQ1	can convey cultural meaning	.91
PQ2	can impress people	.84
PQ3	has a fashion sense	.86
attribute: product attractiveness		.91

TABLE 5 RELIABILITY OF BEAUTY OF PRODUCT EMOTIONAL DESIGN CHARACTERISTICS QUESTIONNAIRE

Code	Dimension	Cronbach α
PQ4	looks perfect proportion	.97
PQ5	has a sense of design	.95
PQ6	has pleasing appearance	.96
attribute: product beauty		.97

TABLE 6 RELIABILITY OF CREATIVITY OF PRODUCT EMOTIONAL DESIGN CHARACTERISTICS QUESTIONNAIRE

Code	Dimension	Cronbach α
PQ7	creative product	.89
PQ8	has a story	.87
PQ9	a clever use of materials	.87
attribute: product creativity		.92

Each dimension and the overall scale of the brand-emotion questionnaire achieved a substantial interrater reliability of .90 ($p < .001$), and the matrix of factor loadings was greater than .85 (Table 7).

TABLE 7 RELIABILITY OF THE BRAND EMOTION QUESTIONNAIRE

Code	Dimension	Cronbach α
BQ1	repurchase	.93
BQ2	recommend	.94
BQ3	attachment	.92
BQ4	positive emotion	.93
BQ5	passion	.93
brand emotion		.94

Correlation Coefficient Analysis

The Pearson product-moment correlation coefficients were computed to assess the relationship between each of the network and emotion variables ($N = 109$ for all tests; Table 8).

TABLE 8 THE MATRIX OF CORRELATION COEFFICIENTS

	Mean	SD	1	2	3	4
1. Product attractiveness	4.48	.87	.91			
2. Product beauty	4.88	.87	.89**	.97		
3. Product creativity	4.49	.87	.88**	.88**	.92	
4. Brand emotion	5.39	1.32	.35**	.29**	.34**	.94

**Level of significance is 0.01 (Two-tailed), Significantly related.
Diagonal: Cronbach's alpha

The Regression Analysis

The regression analysis was computed to explore product design emotional impact on brand evaluation analysis. From the regression analysis, emotional design can be found on the brand products have a significant impact on the emotional nature. Although the R^2 is only .113, but the result supported the Roll (2005) study which design is a small part of the brand strategy, but it can create a differentiated product and shape the customer's perception of the brand.

($N = 109$ for all tests; Table 9).

TABLE 9 REGRESSION ANALYSIS SUMMARY

Variables	R^2	F	β	t	p
Product emotional designs	.113	13.656	.532	3.695	.000

Results and Discussion

Evaluation of Emotion of Product Form

In this study, because of the diverse product categories, we were unable to conduct a single-product comparison, so we overall look of their emotional

design specifications. Based on a 7-point scale and the participants' evaluation of how the product samples felt, the average strengths of the emotional product design characteristics of the samples in the questionnaire survey are listed in Table 10.

TABLE 10 PRODUCT SAMPLES OF DEGREES OF PRODUCT DESIGN EMOTIONAL CHARACTERISTICS QUESTIONNAIRE SURVEY

	P1	P2	P3	P4	P5	Avg
PQ1	3.81	4.61	4.08	4.26	3.75	4.10
PQ2	5.17	4.38	4.58	3.88	4.32	4.47
PQ3	5.71	4.90	5.22	4.33	4.16	4.86
Attribute assessments Avg: attractiveness						4.48
PQ4	5.56	5.06	5.12	4.32	4.18	4.85
PQ5	5.70	4.97	5.10	4.41	4.30	4.90
PQ6	5.63	5.05	5.19	4.41	4.17	4.89
Attribute assessments Avg: beauty						4.88
PQ7	5.41	4.19	4.74	4.39	4.50	4.65
PQ8	4.06	4.25	4.12	4.33	3.85	4.12
PQ9	4.68	5.20	4.83	4.42	4.38	4.70
Attribute assessments Avg: creativity						4.49

The averages in Table 9 indicate the strength of a product-emotion property. The criteria of total design emotion, attractiveness, beauty, and creativity dominated the evaluation of appreciation of emotional product design. Beauty is greater than the average of creativity and attractiveness, and the participants believed that Muji products possess great beauty characteristics.

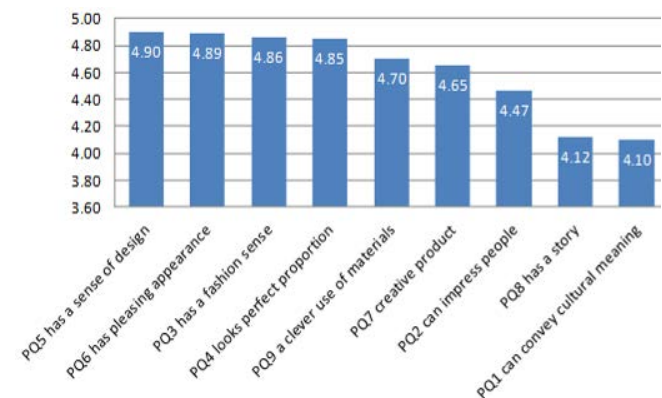


FIG. 3 SORT AVERAGES OF PRODUCT DESIGN EMOTIONAL CHARACTERISTICS QUESTIONNAIRE SURVEY

We examined the effect of emotional product design characteristics. All products with emotional design scores exceeding 4.0 were considered as examples of strong emotional design. The top four emotional-design characteristics of a product were "has a sense of design" (with an average score of 4.90), "has a pleasing appearance" (with an average score of 4.89), "has a fashion sense" (with an average score of 4.86), and "looks perfectly proportioned" (with an average score of 4.85; Figure 3).

Evaluation of Brand Emotion

The average results of the 7-point scale and the subjects' evaluation of feelings regarding the Muji brand are listed in Table 11.

TABLE 11 THE BRAND (MUJI) OF DEGREES OF THE BRAND EMOTION QUESTIONNAIRE SURVEY

	BQ1	BQ2	BQ3	BQ4	BQ5
MUJI	5.82	5.90	5.03	4.81	5.39
Avg	Brand emotion				
	5.39				

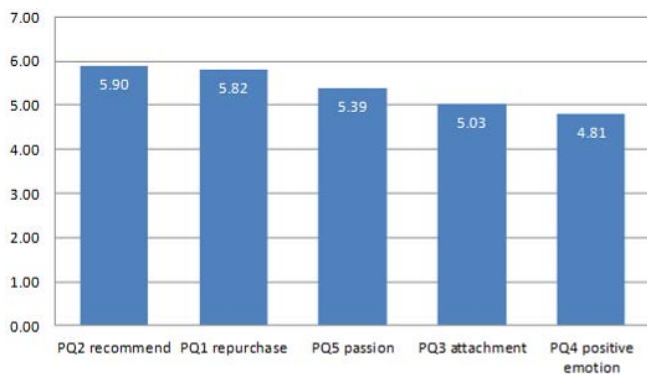


FIG. 4 SORT AVERAGES OF BRAND EMOTIONAL CHARACTERISTICS QUESTIONNAIRE SURVEY

The averages in Table 10 and Figure 4 indicate the strength of brand emotion. The criteria of total brand emotion, repurchase, willingness to recommend, attachment, positive emotion, and passion dominated the evaluation of emotion appreciation of a product design. All Muji products with emotional-brand scores exceeding 4.5 were considered examples of strong brand emotion. The top three brand emotion characteristics of Muji products were “will recommend” (with an average score of 5.90), “repurchase” (with an average score of 5.82), and “passion” (with an average score of 5.39).

Analysis of the questionnaire demonstrated a correlation between emotional product design and brand emotion. The data analysis indicated the importance that consumers place on beautiful product design. Consumers hold positive perceptions toward an emotional brand and take action toward the brand by repurchasing it. Kim, Park, and Jeong (2004) confirmed this finding by indicating that customer loyalty combines customers' favorable attitude and repurchase behavior.

Conclusion

According to the analysis of emotional design and brand emotion, our findings are consistent with those

of the aforementioned empirical studies. This study contains preliminary research on product emotional design and brand emotion. A major finding is that product emotional design significantly affects brand emotion. The results indicated that the product design of an emotional brand involves the emotional characteristics of attractiveness, beauty, and creativity. These characteristics influence the brand emotion (repurchase, willingness to recommend, attachment, positive emotion, and passion) of consumers. This result is confirmed by Mi (2012), who proposed that products that elicit consistent consumer perceptions enhance consumer loyalty to the brand, determine shopping behaviors, and reveal how the product is perceived regarding brand-driven design (Abbing & Gessel, 2008). The products examined in this study have simple shapes, pure colors, and natural textures, thus exuding a sense of design, fashion, and pleasing appearance of emotional product design. This result confirms the proposal by Hoegg and Alba (2011) that visual design communicates functional performance independent of attractiveness. Consumers infer functional performance based on product form, which was confirmed by Yen, Lin, and Lin (2013), who claimed that minimal style plays a crucial role in recent designs.

This study demonstrated the necessity of product emotional design, which should be stressed in an emotional brand to trigger brand emotion. In addition to recognized brands, future product design of new brands can implement these emotional design characteristics to highlight and enhance brand image and brand emotion. Although the emotional product design of an emotional brand has a high level of performance, it has certain limitations. Cause of story and convey cultural meaning of product emotional design characteristics on recognized emotional brand's products do not have a strong advantage, cultivating positive emotions and attachments in consumers toward the brand is difficult. Thus, further research on how to design new brands effectively is necessary.

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