

A Study on the Correlation Between Brand Image and Customer Satisfaction Using Big Data Analytic

Chunxiang HUA^{a,1}, Fang WU^a, Xingyao ZHOU^a, Qi DUAN^a and Ning ZHANG^a

^aChina National Institute of Standardization, Beijing 100088, China

Abstract. Social media provide new opportunities to publicize the image of a brand, and the study of the correlation between brand image and customer satisfaction using big data analysis technology is proposed. This paper focuses on the impact of brand image matching strategy on consumer satisfaction in social media, and explores the four oriented features of social media, namely personality-oriented, fun-oriented, interaction-oriented and interest-oriented, and discusses the different brand images that should be paid attention to in social media, including brand value image, emotional image and specialized image, and then verifies the matching effect between them. The results show that personality-oriented social media promote brand values, fun and interaction-oriented social media promote emotional image, and interest-oriented social media promote professional image, all of which promote consumers' satisfaction with the brand.

Keywords. brand image; marketing matching strategy; consumer satisfaction; social media

1. Introduction

Before studying customer satisfaction, it is necessary to first clarify "what is the customer" or "who is the customer". In a broad sense, the customer refers to any individual or enterprise that chooses or may choose goods or services, that is, the object with direct economic relations; In a narrow sense, customers are only the final consumers of enterprise products or services [1]. This paper studies the enterprise customers of foreign-funded equipment manufacturing enterprises, including those who purchase equipment, use equipment and contact equipment after-sales service. Customer satisfaction was first proposed by Cardozo in 1965 and introduced into marketing. Subsequently, scholars at home and abroad launched relevant research on customer satisfaction, and so far the research around customer satisfaction has been relatively mature. Among them, there are two main definitions of customer satisfaction: one is from the state point of view, that is, the customer's subjective feelings after completing the purchase behavior; The other is from the perspective of process, which is the customer's evaluation of their consumption behavior [2]. Customer satisfaction is a subjective psychological activity. When the customer is dissatisfied or disappointed, it is because the customer's actual perception does not meet the expected expectations, resulting in a psychological gap; On the contrary, when the actual feeling is consistent with the

¹ Corresponding Author: Chunxiang HUA E-mail: chunxianghua@163.com

expected value, the customer will feel happy or satisfied. Customer satisfaction can generally be divided into three levels, including product satisfaction, service satisfaction and social satisfaction [3]. Customer satisfaction is a related concept that quantifies the level of customer satisfaction. It reflects the emotional state of customers on products or services and in the purchase process after their purchase behavior [4]. Based on the gap theory of psychology, customer satisfaction depends on customers' expected cognition of products and final actual feelings. The difference between the two determines the degree of customer satisfaction [5]. There are generally two kinds of customer satisfaction measurement - satisfaction index model based on consumer behavior theory and satisfaction theoretical model combining consumer psychology and marketing [6-8].

2. The research methodology

The brand image matching strategy emphasizes how well social media matches the brand image in a specific aspect (e.g., cultural, emotional, or functional) and tries to develop an operational strategy that has a high degree of matching with the brand image [9].

Specifically, social media is the core of the brand's overall image, and it is a strategy that emphasizes the full range of operations to increase the visibility of social media.

Scholars focus on the 4I theory of integrated marketing, and then the theory is gradually applied to other fields of marketing. The four aspects of the 4I theory are personality orientation, interest orientation, interaction orientation and interests' orientation. Individuality orientation refers to accurate positioning and differentiation of consumers, accurate grasp of the personalized needs of target consumers, and accurate marketing. Interest orientation refers to the interest that social media brings to consumers in the process of using social media. Interaction orientation means that social media places more emphasis on the interaction process with consumers and provides consumers with efficient and convenient interactive functions. Compared with personality, interest and interaction orientation in 4I, interest orientation is more objective. Interest orientation not only refers to concrete interests, but also refers to more abstract emotional interests.

For profit-oriented social media, compared to personality-, fun- or interaction-oriented social media, profit-oriented social media need to promote a professional image to maximize traffic and consumer satisfaction with the brand. If values and emotions are promoted at this time, on the one hand, they will not be able to compete with personality-, fun- and interaction-oriented social media; on the other hand, the benefits will be discounted, which will affect consumers' brand satisfaction. In summary, the following research propositions are made.

Research proposition 1: Personality-oriented social media campaign value images have a matching effect on brand satisfaction, i.e., personality-oriented social media campaign value images can promote consumers' brand satisfaction.

Research proposition 2: Fun-oriented social media promotion of emotional images has a matching effect on brand satisfaction, i.e., fun-oriented social media promotion of emotional images can promote consumer satisfaction with a brand.

Research proposition 3: Interaction-oriented social media promotion of emotional images has a matching effect on brand satisfaction, i.e., interaction-oriented social media promotion of emotional images can promote consumers' brand satisfaction.

Research proposition 4: Benefit-oriented social media promotion of a professional image has a matching effect on brand satisfaction, i.e., benefit-oriented social media promotion of a professional image can promote consumer satisfaction with a brand.

3. Analysis of results

This paper examines the effectiveness of the match between social media and brand image.

First, 800 respondents were recruited over a three-month period from November 2022 to January 2023, of which 200 were asked what they considered personality-oriented social media, 200 were asked what they considered fun-oriented social media, 200 were asked what they considered interaction-oriented social media, and the final 200 were asked what they considered interest-oriented social media. The two coders made their own judgment based on their responses; if the two coders thought that the types of platforms written by the respondents matched their assigned platform groups, they were included in the database; if the two coders had conflicting opinions, additional coders were added to the database to discuss the decision. The measurement scales of brand value image, emotional image, and professional image are based on the previous studies, and are measured by five questions. Values image items such as "the brand will often communicate their values in e-commerce operations" (Cronbach's coefficient of 0.86), affective image items such as "the brand will often communicate emotionally with consumers in e-commerce operations" (Cronbach's coefficient of 0.79), and emotional image items such as "the brand will often communicate emotionally with consumers in e-commerce operations" (Cronbach's coefficient of 0.79) were used. (Cronbach's coefficient of 0.79), and professional image items such as "The brand will often behave professionally in its e-commerce operations" (Cronbach's coefficient of 0.91). Brand satisfaction was measured by items such as "I have a positive attitude toward the brand" (Cronbach's coefficient of 0.84). A validity analysis of the above variables was conducted and the results of the model fit showed the following. $\chi^2/df=2.33 < 3$, RMSEA=0.064 < 0.08, other model indicators (such as GFI, CFI, etc.) are greater than 0.9, indicating that the model fits well; Factor loads of all latent variables are greater than 0.50, and CR is higher than 0.70. The above results show that all factors have good reliability and validity.

Corresponding product terms are generated from the hypotheses. The verification of Proposition 1, Proposition 2, Proposition 3 and Proposition 4 will be carried out sequentially in the following section.

First, the research proposition1 is "personality-oriented social media campaign value images have a matching effect on brand satisfaction, i.e., personality-oriented social media campaign value images promote brand satisfaction". The brand image and personality orientation were decentralized simultaneously to generate brand value image* personality orientation, emotional image* personality orientation, and professional orientation* personality orientation, respectively. The three dimensions of brand image and the three interaction terms were included as independent variables in the regression equation model, and the results are summarized in Table 1.

Table 1. Interaction analysis of personality-oriented social media and brand image

	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	0.08	0.03	-0.01	0.02	-0.03
Age	0.01	0.07	0.09	0.01	0.02
Revenue	0	0.06	0	0.28	0.04
Academic qualifications	0.23	-0.01	0.03	0.08	0.03
The image of values		0.29**	0.21**	0.29**	0.25**
emotive images		0.38**	0.33**	0.32**	0.27*
image of professionalism		0.30**	0.27**	0.24*	0.20**
value image* personality orientation			0.32**	0.28**	0.25**
Emotional image *				0.13	0.11
personality oriented professionally oriented *					0.1
personality oriented model statistics	2.12	18.79***	29.13***	22.79***	17.89***

Note: * represents $p<0.05$, ** represents $p<0.01$, *** represents $p<0.001$

Model 1 includes control variables, namely gender, age, income and education level; Model 2 includes three dimensions of brand image; Model 3 incorporates the first interaction item, namely, value image * personality orientation, on the basis of model 2; Model 4 includes the second interactive item emotional image * personality orientation on the basis of model 3; On the basis of model 4, model 5 includes the third interaction item, professional orientation * personality orientation. Except model 1, which is not significant, the rest of the overall models have reached the level of significance, indicating that there is at least one significant independent variable predicting the dependent variable. Specifically, brand value image, emotional image and professional image have a significant positive impact on brand satisfaction. More importantly, value image * personality orientation has a significant impact on brand satisfaction, while emotional image * personality orientation, professional orientation * personality orientation has no significant impact on brand satisfaction. Therefore, personality oriented social media promotion of value image has a matching effect on brand satisfaction, that is, personality oriented social media promotion of value image promotes brand satisfaction.

Secondly, brand image and fun orientation were decentralized at the same time to generate brand value image* fun orientation, emotional image* fun orientation, and professional orientation* fun orientation, respectively. The three dimensions of brand image and the three interaction terms were included as independent variables in the regression equation model, and the results are summarized in Table 2.

Table 2. Analysis of the interaction between fun-oriented social media and brand image

	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	0.02	0.03	0.05	0.11	0.08
Age	-0.01	0.07	0.09	0.08	0.13
Revenue	0.08	0.06	-0	0.12	0.04
Academic qualifications	0.06	-0.01	0.03	0.08	0.11

The image of values		0.29**	0.23**	0.18**	0.20**
emotive images		0.38**	0.28**	0.25**	0.25**
image of professionalism		0.30**	0.21**	0.27**	0.26**
value image*			0.15	0.09	0.12
personality orientation					
Emotional image *				0.35**	0.27**
personality oriented					
professionally oriented *					0.18
personality oriented					
model statistics	2.13	18.79***	25.55***	34.71***	16.78**

Note: * represents $p<0.05$, ** represents $p<0.01$, *** represents $p<0.001$

Model 1 and Model 2 remain the same as before; Model 3 incorporates the first interaction item, namely, value image * interest orientation, on the basis of model 2; Model 4 incorporates the second interactive item emotional image * interest orientation on the basis of model 3; On the basis of model 4, model 5 incorporates the third interaction item, namely, professional orientation * interest orientation. Except model 1, which is not significant, the rest of the overall models are significant, indicating that there is at least one significant independent variable predicting the dependent variable. Specifically, the impact of value image * interest orientation, professional orientation * interest orientation on brand satisfaction is not significant, while the impact of emotional image * interest orientation on brand satisfaction is significant. Therefore, interest oriented social media publicity of emotional image has a matching effect on brand satisfaction, that is, interest oriented social media publicity of emotional image promotes brand satisfaction.

Thirdly, after the variables are centralized, the brand values image * interactive orientation, emotional image * interactive orientation, professional orientation * interactive orientation are generated respectively. The three dimensions and three interactive terms of brand image are included in the regression equation model as independent variables, and the results are summarized in Table 3. Model 1 and Model 2 remain the same as before; Model 3 incorporates the first interaction item, namely, value image * interaction orientation, on the basis of model 2; Model 4 includes the second interactive item emotional image * interactive orientation on the basis of model 3; On the basis of model 4, model 5 incorporates the third interaction item, professional orientation * interaction orientation. The results show that value image * interaction orientation, professional orientation * interaction orientation has no significant impact on brand satisfaction, while emotional image * interaction orientation has a significant impact on brand satisfaction. Therefore, the interactive oriented social media publicity of emotional image has a matching effect on brand satisfaction, that is, the interactive oriented social media publicity of emotional image promotes brand satisfaction.

Table 3. Interaction-oriented social media and brand image interaction analysis

	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	0.02	0.03	0.13	0.06	0.1
Age	-0.01	0.07	0.05	0.08	0.09
Revenue	0.08	0.06	-0.1	0.12	0.04
Academic qualifications	0.06	-0.01	0.03	0.1	0.11

The image of values		0.29**	0.19*	0.25**	0.20**
emotive images		0.37**	0.33**	0.31**	0.30**
image of professionalism		0.30**	0.34**	0.21**	0.33**
value image*			0.15	0.09	0.12
personality orientation					
Emotional image *				0.29**	0.28**
personality oriented					
professionally oriented *					0.14
personality oriented					
model statistics	2.12	18.79***	20.17***	20.99***	31.66**

Note: * represents p<0.05, ** represents p<0.01, *** represents p<0.001

4. Conclusion

This paper focuses on the impact of brand image matching strategies on brand satisfaction in social media, and the empirical results show that personality-oriented social media promote the image of values, fun and interaction-oriented social media promote the image of emotions, and interest-oriented social media promote the image of professionalism are all effective in promoting consumers' satisfaction with brands. Based on the results of the empirical study, we propose the management implication that personality-oriented social media should emphasize the promotion of values. Fun and interaction-oriented social media should emphasize the promotion of emotions. Benefit-oriented social media should emphasize the promotion of professional image.

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