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The Formation of Brand Loyalty: A Partial Dual-Factor Explanation

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ABSTRACT

This study examines the roles of both brand satisfaction and brand trust in the formation and development of brand loyalty among Chinese mobile phone users. Drawing on Herzberg's Dual-factor Theory of Job Satisfaction, we proposed and empirically tested hypotheses about the roles of brand satisfaction and brand trust on brand loyalty. Our results suggest that the roles of brand satisfaction and brand trust in the formation and development of brand loyalty are different, both in their own asymmetric manner. Particularly, in contrast with previous research, we find that neither brand satisfaction nor brand trust is fully qualified as "Hygienic Factor" and "Motivator," correspondingly, in a Dual-factor framework. In addition, the quadratic effects by, and the mediation roles of, the latent variables are identified. Managerial significance of the findings is discussed.

KEYWORDS

Brand loyalty; brand satisfaction; brand trust; hygienic factor; motivator; SEM

Introduction

Brand loyalty is considered as a key factor for companies to gain competitive advantage in the marketplace. Numerous studies have examined antecedents and consequences of brand loyalty (Dick and Basu 1994; Doney and Cannon, 1997; Sirdeshmukh, Singh, and Sabol 2002; Møller Jensen and Hansen 2006; Ferreira and Coelho 2015). Although marketing literature has recognized some other factors, such as the loyalty tendency, customer knowledge of the brand, the visible quality, and customer characteristics, to be influential on brand loyalty (Dick and Basu 1994; Chiou, Droge, and Hanvanich 2002; Johnson, Herrmann, and Huber 2006), researchers, in particular, have identified brand satisfaction and brand trust as the footstones for brand loyalty creation (Anderson and Sullivan 1993 Bolton and Lemon 1999; Garbarino and Johnson 1999; Jones and Suh 2000; Chaudhuri and Holbrook 2001; Lam et al. 2004; Agustin and Singh 2005; Veloutsou 2015). Furthermore, these variables' positive, linear relationships with brand loyalty have been confirmed by the literature.

Recently, researchers have discovered a curvilinear effect between satisfaction and loyalty. For example, some claim that there exists a "satisfactory trap,"

referring to an irrelative customer loyalty area in which investments for improving satisfaction would result in little actual gaining (Reichheld, 1993; Finkelman 1993). Such a theory has been confirmed in both the consumer durable goods (Wang and Zhao 2003) and the service domains (Agustin and Singh 2005). Meanwhile, the nonlinear relationship between brand trust and brand loyalty has also gained attentions of marketing scholars. Agustin and Singh (2005) find the nonlinear effects of transaction-specific satisfaction, trust, and value on customer loyalty intentions, described as "an inclination to perform a diverse set of behaviors that signal a motivation to enhance an ongoing relationship with the service provider, including repeat buying and greater share of wallet." Delgado-Ballester and Munuera-Alemán (2001) suggest that in situations of high involvement, the effect of brand trust on generating customers' commitment is stronger than that of the overall satisfaction.

In this study, we aim at obtaining a more comprehensive understanding on the formation and development of brand loyalty by further exploring the mechanism of influence of brand satisfaction and brand trust. More specifically, drawing on Herzberg's Dual-factor Theory of Job Satisfaction, we integrate

brand satisfaction, brand trust, and brand loyalty into a single theoretical framework and propose a series of research expectations regarding the complex relationships among these constructs.

We test our expectations using data collected via a survey from a sample of Chinese mobile phone users. We chose the mobile phone market in China for our investigation for a few reasons. First, China has the largest market in terms of mobile phone subscribers, as many as 1.3 billion in 2015 (Wikimedia Foundation *n.d.*). Second, and probably more important, all the major mobile phone brands have presence in the Chinese market, including foreign brands such as Apple, Samsung, and Motorola, and domestic brands such as Huawei, Xiaomi, and ZTE. In other words, these mobile phone brands are all constantly engaged in vigorous competition. We believe that a sufficiently large market in a tough competitive environment provides an ideal setting to examine the relationships among brand satisfaction, brand trust, and brand loyalty. Furthermore, mobile phone consumers in China also possess unique characteristics. While they have the same needs and wants as those of any other high-tech product buyers in the global market, their Asian culture background have inevitably shaped their marketing behaviors. Knowledge gained from a study involving such a group of consumers would certainly contribute to our understanding on international consumer marketing.

Our results are mostly consistent with what our theory would predict: the roles of brand satisfaction and brand trust on the formation and development of brand loyalty are different, both in their own asymmetric manner.

In the next section, we discuss the literature on brand satisfaction, brand trust, and brand loyalty. “Data” section describes our data, while “Model” section explains our model. In “Empirical results” section, we present and discuss our empirical results. “Conclusions and limitations” section concludes with managerial implications of our findings and directions for additional research.

Conceptual framework

Concepts

Brand satisfaction

Oliver (1997) believes that customer satisfaction is a psychology reaction after customers’ needs are satisfied, and it is the judgments that customers make for the

characteristics of products or services as well as the extent to which the products or the services satisfied the customers’ needs.

Engel, Blackwell, and Miniard (1995) define brand satisfaction as “the outcome of the subjective evaluation that the chosen alternative (the brand) meets or exceeds the expectations.” Such definition is in consistency with the “expectation-inconsistency” paradigm in the literature, except for the fact that it distinguishes expectation from brand performance. There are two types of brand satisfaction, namely, transaction-specific satisfaction and accumulative satisfaction. Transaction-specific satisfaction refers to customers’ evaluation and emotional reaction after a recent transaction. It captures the short-term and specific experience evaluation or feeling. On the other hand, accumulative satisfaction is an overall evaluation of purchase or consumption experiences. In Engel, Blackwell, and Miniard (1995)’s definition, the role the satisfaction with specific transaction plays in the process of customer loyalty formation is in a noncentralized position.

Additionally, Jones and Suh (2000) find that great differences exist in the roles these two types of satisfaction play in customers’ repurchase intention. Specifically, accumulation satisfaction has a direct influence on customer repurchase intention, and it has both partial mediation and partial adjustment effects on the relationship between transaction-specific satisfaction and repurchase intention. These findings therefore motivate us to further explore the nonlinear impact of brand satisfaction on brand loyalty.

Brand loyalty

Early studies on customer loyalty mainly concentrated in behavioral aspects. Later research in this area has been transited to attitude aspects. Scholars now generally agree that customer loyalty has a complex structure, containing both the behavioral and the attitude components. While behavioral loyalty is manifested in repeating purchase, the attitude loyalty is a deep pledge that customers make to their preferred products and services (Oliver 1999).

Brand loyalty is naturally viewed as a brand identifiable concept. For example, it is defined both as the customer’s attachment to a specific brand (Aaker 1991) and as her positive attitude to a certain brand (Assael 1984), and it is precisely this attitude that causes continual purchase. Bloemer and Kasper (1995)

discriminate brand loyalty into true and false ones. The true brand loyalty must satisfy the following conditions: having bias (not random), behavioral reaction (i.e. purchase), sustaining along the time, being decided by a decision group, choosing from one or more substitutive brands, being a mental process of producing the brand pledge. The description of true brand loyalty makes it comparable to the two-component-structured customer loyalty discussed before: these conditions are either behavior-related or attitude-associated.

Brand trust

Moorman, Deshpande, and Zaltman (1993) define trust as “the wish of depending on the transaction partner who has confidence.” Morgan and Hunt (1994) conceptualize trust as “the confidence on partners’ reliability and honest.” Both definitions emphasize the importance of confidence and reliability. Chaudhuri and Holbrook (2001) consider brand trust as “the wish that common consumers trust that a brand has the ability to fulfill its declared function.” This definition highlights the fact that consumers pay attention not only to the brand’s claimed functions, but also to its ability to perform these functions. Lau and Lee (1999) define brand trust as “due to the expectation that a brand will bring positive result, when facing risks, consumers have the wish to trust this brand.” What this definition stresses is consumer’s anticipation to the brand performance in the condition of facing risks.

Delgado-Ballester and Munuera-Aleman (2001) goes one step further to define brand trust as “under the circumstance of consumers facing risks, the confidence expectation of customers to the brand reliability and the brand behavior intention.” This definition identifies both the customer’s confidence expectation and the presented risk as key conditions for the existence of brand trust. More importantly, it underscores two different dimensions of brand trust: (1) Brand reliability, meaning consumers believe that not only the brand can fulfill the value it declares, it can also satisfy individual needs in a continual and positive way, thus bringing positive results to the consumers. Hence, this dimension represents a pledge to the brand performance. (2) Brand behavior intention, referring to the degree to which the brand upholds the benefits for its consumers. The brand intention implies some emotionality that individuals have for the brand. It makes consumers feel that various

behaviors of this brand are for the benefits of the consumers, and the brand will not be involved in suspicious behaviors that may harm consumers. Similarly, Gurviez and Korchia (2003) believe that brand trust can be examined in three dimensions: the first one is the ability dimension, which is the degree, in consumers’ mind, that the brand can satisfy consumers expectation of the products functions; The second one is the integrity dimension, which is the degree, in consumers’ mind, that the brand upholds the pledge it has made; the third one is the benevolence dimension, which is the degree, again in consumers’ mind, that the brand maintains the benefits of consumers.

One should also notice that not all exchanges need brand trust. For consumers, brand trust only takes effect in transitions, which may result in uncertainty, and for which post-purchase guarantee is not present. In such circumstances, consumers perceive high risk in the consequence of brand selection (Chaudhuri and Holbrook 2002).

In light of all these deliberations in literature, we define brand trust as the will that customers confide in a certain brand to perform the agreed functions and maintain brand ability, brand benevolence, and brand benefits in order to reduce consumers’ perceived risk.

Theoretical framework and hypotheses

Although many studies have documented a direct, positive, and linear effects of customer satisfaction on brand loyalty, some researchers (Oliver 1999; Coyne 1989; Cronin and Taylor 1992) claim that the relationship between customer satisfaction and customer loyalty is neither inevitably direct nor necessarily linear. Other transaction-related variables play mediating roles, and only under certain conditions will customer satisfaction be transformed into customer loyalty. In fact, Sirdeshmukh, Singh, and Sabol (2002) identify trust as an intermediary variable connecting satisfaction and loyalty intention.

Following Sirdeshmukh, Singh, and Sabol (2002), we draw on Herzberg’s Dual-factor Theory of Job Satisfaction (Herzberg, Mausner, and Snyderman 1959) to develop a theoretical foundation for examining brand loyalty. According to Herzberg, Man has two sets of needs, namely, Motivators and Hygiene Factors. Motivators (e.g., achievement recognition, sense of importance to an organization,

involvement in decision making), rooted in the intrinsic conditions of job itself, generate positive satisfaction. Hygiene Factors (e.g., salary, vacations, physical working environment), extrinsic to the work itself, cause dissatisfaction if missing. Hygiene Factors and Motivators function differently in the formulation of Job Satisfaction. Initially, Hygienic Factors play a leading role, but when the level of Job Satisfaction surpasses a threshold, Motivators become crucial. Furthermore, the effect of Hygiene Factors on Job Satisfaction follows the Law of Diminishing Marginal Utility, while that of Motivators reflects an opposite pattern (see Figure 1).

The categorization of influencers in the Dual-factor Theory is enormously illuminating in understanding the formation of brand loyalty. Specifically, brand satisfaction and brand trust function similarly in shaping brand loyalty as do Hygiene Factors and Motivators in forming Job Satisfaction. If a brand cannot satisfy the customer's minimum expectation, brand loyalty is deeply and negatively impacted, or even removed. However, beyond certain level, brand satisfaction is no longer sufficient in driving brand loyalty. In such circumstances, even if the company invests heavily in enhancing satisfaction, the resulting increment in brand loyalty is not proportional. Therefore, we propose the following hypotheses,

H1: A positive linear relationship exists between brand satisfaction and brand loyalty.

H2: A negative quadratic relationship exists between brand satisfaction and brand loyalty.

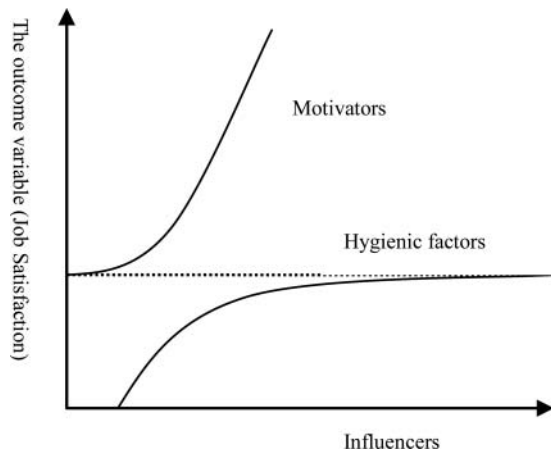


Figure 1. The different effects of hygienic factors and motivators on job satisfaction.

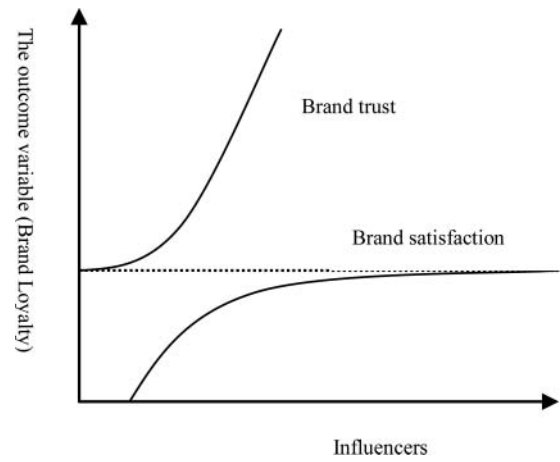


Figure 2. The different effects of satisfaction and trust on brand loyalty.

On the other hand, although not directly associated with specific product features or customers' immediate usage experiences, brand trust is essential in forming a strong, positive attitude of the customer toward the brand. When it is accumulated and surpasses certain level, it produces a profound, positive, and increasingly growing, effect on brand loyalty (see Figure 2). Therefore, we propose the following hypotheses:

H3: A positive linear relationship exists between brand trust and brand loyalty.

H4: A positive quadratic relationship exists between brand trust and brand loyalty.

Many studies have found that brand satisfaction leads to brand trust (e.g., Delgado-Ballester and Munuera-AlemÁN 2001; Sirdeshmukh, Singh, and Sabol 2002; Agustin and Singh 2005). We therefore follow the literature to propose the following hypothesis:

H5: A positive linear relationship exists between brand satisfaction and brand trust.

Although, in their study on triadic mechanisms of Transactional Satisfaction, Trust, and Value, Agustin and Singh (2005) have found that both Transactional Satisfaction and Trust have curvilinear effects on Loyalty Intention, they fell a step short of proposing a curvilinear relationship between Transactional Satisfaction and Trust. However, a consumer's brand trust, in many cases, is built upon his or her satisfactory experience with

the brand. Consequently, the pace of accumulation of brand trust could be slower than that of brand satisfaction. We therefore have the following hypothesis:

H6: A negative quadratic relationship exists between brand satisfaction and brand trust.

Scholars have stressed the importance of considering interaction effects in examining nonlinear relationships. For example Ganzach (1997) argues that if existent interaction effects are neglected while investigating secondary effects, one could make misleading conclusions. Even without theoretical supports, one still needs to consider interactions to reduce the risk of type I and type II errors. Therefore, we include interactions of brand satisfaction and brand trust on brand loyalty in our model and propose the following hypothesis:

H7: An interaction relationship exists between brand satisfaction and brand trust on brand loyalty.

The generalized model of nonlinear relationships among brand satisfaction, brand trust, and brand loyalty is presented in Figure 3. We next describe our data.

Data

Questionnaire design

We chose mobile phone users in China as participants in our empirical study since, as discussed before, this market provides a nearly perfect platform for us to examine the relationships among the interested constructs. We considered both existing literature and unique aspects of Chinese consumers to create itemized scales for the survey.

We follow Oliver and Swan (1989), Garbarino and Johnson (1999) and Jin (2005) to develop three Likert scales (1–7, with 7 being the highest degree of agreement) to measure brand satisfaction, which was operationalized through three components: overall satisfaction, overall evaluation of usage experience, and expectancy disconfirmation.

We developed another three Likert scales to measure brand trust, with reference to Chaudhuri and Holbrook (2001), Sirdeshmukh, Singh and Sabol (2002), and Jin (2005). Specifically, trust was operationalized through three key components: safe, honest and sincere, and overall evaluation of trust.

Finally, five scales on brand loyalty were created, following Chaudhuri and Holbrook (2001) and Jin (2005). Specifically, loyalty was operationalized through five key components: price tolerance given repurchase, repurchase likelihood, positive word-of-mouth, encouraging purchase by friends and relatives, and likelihood of being first choice.

Thus, our preliminary questionnaire included 13 scale items. To ensure proper measures of the constructs, we pretested scale validity and reliability with 90 interceptive surveys in busy streets of Xuhui District in Shanghai, China. The test of validity was first conducted by exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) value in preliminary survey is 0.905, which is above the suggested threshold of 0.8, and the Bartlett's Test of Sphericity is also significant ($p < .000$). Therefore, the validity of the scales is confirmed.

We used Cronbach's alpha coefficient to test the reliability of the scales. We revised the questionnaire based on the results of the test, with two inappropriate items deleted, and evaluated scale reliability again.

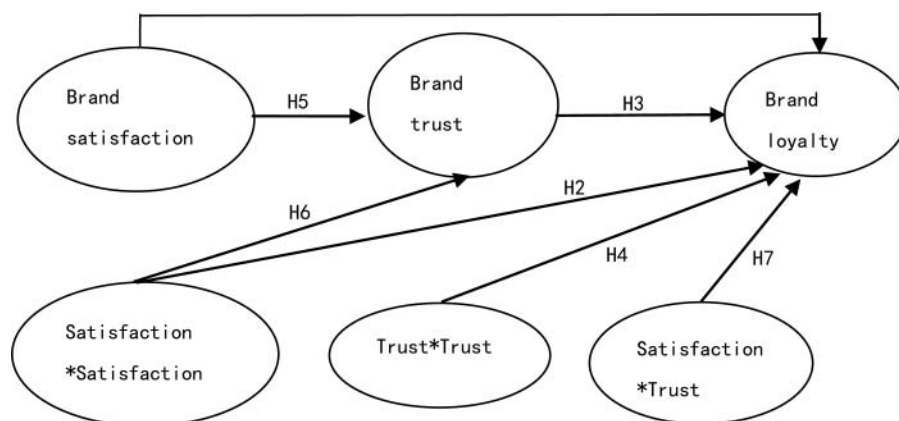


Figure 3. Nonlinear relationships among brand satisfaction, trust, and loyalty.

The resulting Cronbach's alpha values for brand satisfaction, brand trust, and brand loyalty are 0.9534, 0.8895, and 0.9137, respectively. See the Appendix for the finalized scales.

Data collection

We then conducted the formal survey in Xuhui, Changning, and Minhang districts in Shanghai, China, with a judgment sample obtained both in retailing outlets selling mobile phones and prepaid phone cards, and at major intersections. Shanghai is selected as the survey site, not only because it is economically the most developed city in China with the largest population of brand-conscious consumers, but also because it is the most internationalized city in mainland China. The findings from a survey in this city should, therefore, be more generalizable to other international markets than those generated from other Chinese cities.

We recruited only owners of at least two cell phones under a same global brand (e.g., Apple, Nokia, Motorola, and Samsung) within the last 5 years, because, according to our pretest, these customers tend to show high brand loyalty. Small gifts were used as incentives for participation. Altogether 300 questionnaires were distributed and 208 were retrieved (see Table 1 for sample description). We next discuss our model.

Model

We used Structural Equation Modeling (SEM) to examine the structural relationships among the sets of

interrelated latent variables in this study. The following equations were formulated:

$$\eta_1(BT) = \gamma_{11}(BS) + \gamma_{13}(BS^2) + \zeta_1 \quad (1)$$

$$\eta_2(BL) = \gamma_{21}(BS) + \beta_{21}(BT) + \gamma_{22}(BT^2) + \gamma_{23}(BS^2) + \gamma_{24}(BT * BS) + \zeta_2 \quad (2)$$

where *BT* represents brand trust, *BS* represents brand satisfaction, and *BL* represents brand loyalty. η refers to endogenous variables, and ζ represents disturbance terms. γ and β are coefficients of the influence of exogenous and endogenous variables, respectively.

Several procedures exist for estimating quadratic and interaction effects with latent constructs. Among these, we adopted Ping (1996)'s two-step estimation technique, as it allows us to reduce estimation errors and difficulties by avoiding adding variables or constraint equations in the estimation process. We next discuss our empirical results.

Empirical results

Measurement reliability and validity

Since same ordered questions were used in data collection, we further conducted Harman's single-factor test and confirmatory factor analysis (CFA) to diagnose potential data reliability and validity issues, as suggested by Podsakoff et al. (2003). We used principal component analysis to determine the number of factors that are necessary to account for the variance in the variables. The results showed that neither a single factor emerging from the factor analysis nor one general factor accounts for the majority of the covariance among the latent factors (the factors with an eigenvalue higher than 1 jointly account for 62% of total variance in the data, whereas the one with largest eigenvalue accounts for only 16%). The outcome of CFA revealed that the single-factor model did not fit the data. All the results showed that Common Method Variance (CMV) is not a serious issue in this study.

We computed Composite Reliability Value and Average Variance Extracted (AVE) for each latent variable. The results show that our scales possess high degree of reliability and validity. Specifically, all the Composite Reliability Values are great than the critical value of 0.7. Also, all the AVE scores are great than 0.5, indicating that each latent variable has explained

Table 1. Sample description.

Variables	Value	Numbers	Percentage
Gender	Male	107	51.4
	Female	101	48.6
Age	<30	84	40.4
	31–40	53	25.5
	41–50	46	22.1
	51 and above	25	12.0
Education	High school	11	5.3
	Associate	36	17.3
	Bachelors	104	50.0
	Graduate	57	27.4
Income (in USD)	<\$3,000	25	12.0
	\$3,000–\$6,000	22	10.6
	\$6,000–\$9,000	66	31.7
	\$9,000–\$12,000	55	26.4
	\$12,000–\$15,000	35	16.8
	>\$15,000	5	2.4

Table 2. Comprehensive reliability and AVE value.

Latent variable	Composite reliability	AVE value
Brand trust	0.824	0.611
Brand loyalty	0.857	0.546
Brand satisfaction	0.898	0.746

more than 50% of the average amount of variance in indicator variables (see Table 2).

In addition, we compared the square roots of the AVE scores to correlation coefficients of different latent variables. As Fornell and Larcker (1981) point out, high degree of discriminative validity is demonstrated when the former is greater than the latter. Clearly, this is what our results indicate (see Table 3).

Model estimates

We used LISREL for the SEM analysis. The model's overall fit is satisfactory (chi-square = 115.99, *df* = 67; CFI = 0.97; GFI = 0.93; NFI = 0.94; NNFI = 0.96; IFI = 0.97; RFI = 0.92; RMSEA = 0.059). The R^2 values for brand trust and brand loyalty are 0.41 and 0.32, respectively, indicating the model captures moderate amounts of the variability in the two variables. The final Structural Equation Model is shown in Figure 4.

The results of path analysis and hypothesis testing are presented in Table 4. As can be seen in the table, the positive effect of brand satisfaction on brand loyalty cannot be verified ($B = 0.17, p > 0.05$). However, our empirical results show that there is a significant negative quadratic effect of the brand satisfaction on brand loyalty ($B = -.20, p < 0.05$).

On the other hand, our empirical results validate that there is clearly a significant positive linear effect of brand trust on brand loyalty. ($B = 0.34, p < 0.05$). However, the assumed quadratic effect of the former on the latter is not supported ($B = 0.03, p > 0.05$).

Our results also indicate that brand satisfaction exerts an indirect impact on the latter through brand trust. More specifically, brand satisfaction produces both a positive linear effect ($B = 0.62, p < 0.05$) and a

Table 3. Comparisons between correlations and AVE square roots.

	BT	BL	BS
BT	0.78		
BL	0.46	0.74	
BS	0.61	0.38	0.86

Note. Diagonals are square roots of AVEs.

negative quadratic effect ($B = -0.10, p < 0.05$) on brand trust. In addition, the interaction effect of brand trust and brand satisfaction on brand loyalty is not significant ($B = 0.10, p > 0.05$).

In summary, among all the seven theoretical expectations in our study, H2, H3, H5, and H6 are empirically supported, while H1 and H4 are not.

Although arguing against the theoretical hypotheses in our framework that both brand satisfaction and brand trust would have both linear and nonlinear effects on formulating brand loyalty, the detection of such asymmetric nature of the roles played by these two variables is, in fact, the most notable finding of our study. In contrast with previous research (e.g., Sirdeshmukh, Singh, and Sabol 2002), our results suggest that neither brand satisfaction nor brand trust is fully qualified as "Hygienic Factor" and "Motivator," correspondingly, in a Dual-factor framework. Whereas other factors, such as the unique characteristics of the market, could also contribute to this phenomenon, such a finding has significant management implications, as will be discussed later.

Discussion

Although the estimated coefficient of brand satisfaction on brand loyalty in our model is positive, following the direction predicted by our theory, it is not statistically significant. Such a finding could be due to the fact that in a market of nearly perfect competition (e.g., the Chinese mobile phone market), basic functions that satisfy consumers' essential needs are provided by all major brands (e.g., Apple, Nokia, Motorola, and Samsung). Naturally, cultivation and enhancement of brand loyalty with customer satisfaction under such market condition become more challenging. This is particularly true for transaction satisfaction, which is considered as a marginal factor in the formation of brand loyalty and whose impact on brand loyalty can only be realized through full mediation.

However, our results reveal that there is a significant negative quadratic effect of brand satisfaction on brand loyalty. The marginal utility of brand satisfaction is in a diminishing manner in formulating brand loyalty. Such a finding partially confirms our expectation that brand satisfaction contributes to brand loyalty in a way that is similar to how Hygienic Factors cause Job Satisfaction. In other words, the effect it has

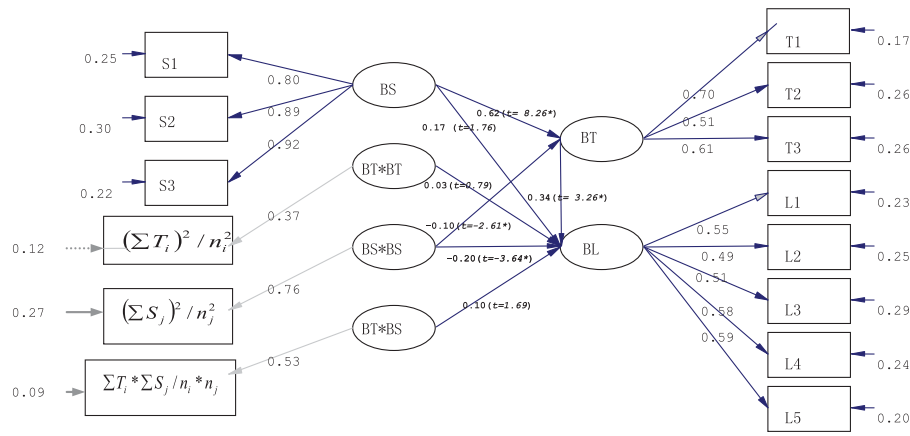


Figure 4. The structure confirmation of the nonlinear relationships among variables. *Note.* *represents significant level of 0.05. The dotted line denotes Factor Loadings and MSEs from which the latent variables are derived a priori.

on building brand loyalty is both limited and disproportionate to the efforts invested into building it.

With regard to the relationship between brand trust and brand loyalty, our findings indicate that brand trust indeed has a significant and positive effect on brand loyalty. Thus, when customers trust a brand, they are inclined to repeat purchase of the brand, avoid developing negative perceptions of the brand, and spread positive word-of-mouth about the brand.

However, our result shows that the quadratic effect of brand trust on brand loyalty is not significant. Such a finding, again, indicates that our Dual-factor theory-based expectation on the impact of brand trust on brand loyalty is only partially true. After certain threshold is passed, the increase in the level of brand trust will not necessarily lead to an accelerated rise in the degree of brand loyalty.

While this result contradicts to our expectation, we do not deny the important role brand trust plays on brand loyalty. In fact, several alternative explanations can be suggested for such a finding. For instance, Chinese consumers are still at a formative stage regarding the development of brand loyalty (Batra 1999); therefore, the power of brand trust as a “motivator,” or an

enhancer, in the mechanism involved in brand loyalty creation has not yet completely been manifested. Additionally, the level of overall trust in today’s China is low due to traditional introvertedness and irregular market behavior and morality (Wang and Yang 2013). As such environmental factor changes in the future, one can expect the “motivator”-type of influence of brand trust on brand loyalty to be fully witnessed.

Our findings also suggest that brand satisfaction has a significant positive effect on brand trust. Whereas on one hand, this shows brand satisfaction has a direct impact on brand trust during transaction, on the other hand it also indicates how vulnerable a transaction satisfaction-based brand trust can be: a single unsatisfied transaction could entirely destroy the long-term established brand trust.

Finally, the results confirm that brand satisfaction has significant negative quadratic effects to brand trust, with a diminishing marginal utility.

To reduce type I and type II errors in the nonlinear relationship, we proposed in the conceptual model interactions among brand satisfaction, brand trust, and brand loyalty. The empirical results do not support such expectations. As mentioned before, there is no theory in the literature on the existence of such interactions; therefore, no further analysis in this regard will be provided.

Table 4. Path analysis and test results of expectations.

Expectation	Variables	Parameter	Estimate	t-value	Result
H1	BS-BL	γ_{21}	0.17	1.76	Rejected
H2	BS ² BS-BL	γ_{23}	-0.20	-3.64*	Accepted
H3	BT-BL	β_{21}	0.34	3.26*	Accepted
H4	BT ² BT-BL	γ_{22}	0.03	0.79	Rejected
H5	BS-BT	γ_{11}	0.62	8.26*	Accepted
H6	BS ² BS-BT	γ_{13}	-0.10	-2.61*	Accepted
H7	BS ² BT-BL	γ_{24}	0.10	1.69	Rejected

Note. * represents significant level of 0.05.

Conclusions and limitations

Conclusions

The nonlinear relationships among brand loyalty and other factors have been gaining attention in marketing literature. In this study, we draw on

Herzberg's Dual-factor Theory of Job Satisfaction to empirically evaluate the roles of brand satisfaction and brand loyalty in the formation of brand loyalty. In contrast with previous findings in the area, our results show that brand satisfaction works only as a partial "Hygienic Factor" in determining brand loyalty. Similarly, brand trust is not quantified as a full "Motivator" in the establishment of brand loyalty. The identification of such partial effects of these variables on brand loyalty, in the Dual-factor theoretical framework, is the primary contribution of our study. In addition, unlike most of the previous researchers who mainly focused on the linear relationships among the concepts, we made the use of new estimation techniques in SEM and efficiently captured the quadratic effects by, and the mediation roles of the latent variables.

Our findings have important managerial implications. For example, marketers must recognize that strategically it might not be a good move to focus extensively on brand satisfaction in order to create and develop brand loyalty, because first, a direct return is not guaranteed; second, overinvestment in brand satisfaction is intrinsically associated with some inefficiency resulting from the identified negative quadratic effect. Managers should also not spend too many resources for enhancing an already trusted brand, since doing this would not dramatically improve customers' brand loyalty. On the other hand, however, to cultivate genuine brand loyalty, building trust in a brand takes priority over other considerations. Efforts need to be undertaken to ensure that the brand is viewed as reliable and benevolent to its target customers. One way to build such trust is to bring brand satisfaction to customers, especially during the transaction process, because brand satisfaction positively and significantly affects brand trust.

Limitations and future research

Our study has several limitations. First, we only focused on the mobile phone market in China, particularly in Shanghai. Although, as previously discussed, Shanghai is a much internationalized, economically developed city and the mobile phone market here is highly competitive, statistically our empirical results cannot be generalized in an unconstrained way to

other international markets. Expansions of in-depth analysis into other industries and markets would, therefore, be necessary in the future. Second, the research is based on cross-sectional data; therefore, it fails to capture the dynamic aspects associated with brand loyalty development.

Finally, as discussed before, the findings on the relationships among brand satisfaction, brand trust, and brand loyalty do not completely agree with the Dual-factor framework. Consequently, a theoretical improvement would be necessary to reveal the true nature of such relationships. We hope future research will address such issues.

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Appendix

Wording of questions and items in the survey

Please rate how much you agree or disagree with each statement on the following scales from 1 to 10, with 1 being “totally disagree” and 10 being “totally agree.”

1.1. I am very satisfied with the brand of this mobile phone that I currently use.....
1 2 3 4 5 6 7 8 9 10

1.2. My experiences in using mobile phones of this brand have been very enjoyable.....
1 2 3 4 5 6 7 8 9 10

1.3. The product and service quality of mobile phones of this brand is much better than what I expected.....
1 2 3 4 5 6 7 8 9 10

2.1. This brand will never be associated with activities that can hurt the interests of customers.....
.....1 2 3 4 5 6 7 8 9 10

2.2. This brand will not be associated with consumer cheating activities.....
.....1 2 3 4 5 6 7 8 9 10

2.3. I consider this brand to be completely trustworthy
.....1 2 3 4 5 6 7 8 9 10

3.1. I will still buy mobile phones of this brand, even if products of other brands with same quality are on

promotion or drop the price.....
.....1 2 3 4 5 6 7 8 9 10

3.2. Of all the purchases of mobile phones that I have made, more than 50% are from this brand.....1 2 3 4 5 6 7 8 9 10

3.3. When others seek advices on mobile phones from me, I always say positively about this brand.....1 2 3 4 5 6 7 8 9 10

3.4. I always encourage people to buy mobile phones of this brand.....
.....1 2 3 4 5 6 7 8 9 10

3.5. This brand is always my first choice, when I buy mobile phones.....
.....1 2 3 4 5 6 7 8 9 10