Effects of Two Types of Service Quality on Brand Equity in China: The Moderating Roles of Satisfaction, Brand Associations, and Brand Loyalty

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Abstract

In mature industries characterized by the differences in environmental elements, service quality often distinguishes an organization from its rivals. Two types of service quality, such as physical and perceived service quality, may have different approaches to enhance brand equity. The authors developed a model that addresses the interrelationships between two types of service quality and brand equity and examined the moderating effects of satisfaction, brand associations, and brand loyalty. Based on survey data collected from department store customers in two major cities of China, the findings indicate that when the moderating effects are considered, the effect of physical service quality on brand equity is much stronger than the effect of perceived service quality.

Keywords: types of service quality, brand equity, satisfaction, moderating role, brand association, brand loyalty

INTRODUCTION

Since a high level of service quality is considered an essential strategy for business performance, researchers have paid attention to measurement and management approaches to improve service quality (e.g., Bell, Auh, and Smalley 2005; Zeithaml, Berry, and

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Parasuraman 1996). A number of studies have focused on the importance of overall service quality or perceived quality. The conceptual argument proposed by Dabholkar, Thorpe, and Rentz (1996) designates physical retail service quality as an extension of the SERVQUAL measurement approach (Parasuraman, Zeithaml, and Berry 1988). Since consumer perceptions of the relative importance of service attributes vary (e.g., Bell, Auh, and Smalley 2005; Levitt 1986), two different evaluations of service quality [the attribute level (physical service quality) vs. the global level (overall service quality)] are concerned with how consumers' judgments of the service affect brand equity.

Scholars have begun to consider the importance of different types of service quality to support business performance (e.g., Bell, Auh, and Smalley 2005). There are different approaches when firms focus on the improvement of service quality. Because both service quality and brand equity are elements that can be used to manage business performance, an understanding of alternative approaches is important. How the service quality-brand equity link interacts during a service encounter is expected to have a potent effect on the moderating effects, and also on how well those effects are incorporated into brand equity. Based on this reasoning, we consider how consumers' judgments of service quality vary with different levels of customer satisfaction, brand associations, and brand loyalty — three factors that are likely to affect brand equity.

To date, the study of brand associations, satisfaction, and brand loyalty factors related to brand equity has dominated the service literature. The bases for these discussions have been both operational and conceptual, with particular attention paid to identifying the relationships between these factors. However, these factors have been mainly considered as dimensions of brand equity, indicating that there is no definitive research to test whether these three factors moderate the relationship between two types of service quality and brand equity. This approach is important because **a theoretical discussion about the advantages and dis**advantages of each form of service quality on brand equity is limited to explaining how other dimensions affect the relationship between the two constructs. From a branding perspective, it is suggested that consumers may have difficulty forming their quality evaluations and may end up basing those evaluations on consideration of factors besides those directly related to their

service experiences (Keller 1998). Our approach is also supported by Punj and Hillyer (2004) who demonstrated that research on brand equity is still in a state of evolution. Furthermore, because the foundation of service quality theory lies in the product quality and customer satisfaction literature (Brady and Cronin 2001), this study is desirable for extending scholars' knowledge and providing insights for practitioners.

Taking a moderating effect perspective on the service quality-brand equity formation, we theorize that the levels of satisfaction, brand associations, and brand loyalty are key elements in increasing brand equity. We argue that these three factors play different roles in enabling the synthesis of the proposed link. Thus, this study seeks to understand how three moderating factors affect the relative importance of the physical retail service quality and overall perceived service quality in determining brand equity.

BACKGROUND

An important contribution on the dynamics of marketing relationships was made by Bell et al. (2005) who considered the effects of two forms of service quality (technical service quality and functional service quality) on customer loyalty. Their study highlights that the main effect of technical service quality on customer loyalty is stronger than functional service quality. This illustrates that there is different significance between the two forms of service quality on customer loyalty. While their study identifies two forms of service quality on customer loyalty, physical service quality is related to Grönroos' technical quality (1983) as well as a part of functional quality (Grönroos 1983; Lehtinen and Lehtinen 1991). In line with these studies' guidelines, this study begins with the differentiation of physical service quality from two forms of service quality identified by researchers.

Given the lack of a theory-based factor structure from the retail literature, and the fact that SERVQUAL has not been supported or successfully adapted to retailing (Dabholkar et al. 1996), it is necessary to conduct further study to gain an understanding of the effect of physical service quality. Even though early works in the service marketing literature indicate that it is a fundamental factor (Bitner 1992; Brady and Cronin 2001), one may argue that con-

ventional approach such as technical, functional and environmental quality (Grönroos 1984) or indeed use the retail service quality framework of Dabholkar, Thorpe and Rentz (1996) is beneficial. As the ability of the physical service quality to influence behaviors and to create an image is particularly apparent for service businesses such as hotels**, airlines, restaurants, banks and retail stores (Bit**ner 1992; Booms and Bitner 1982; Tsaur, Chang, and Yen 2002), consumer judgments may be evaluated by different angles such as both the attribute level and the global level.

Previous literature suggests that a customer's judgment on physical service quality decreases over time (Lehtinen and Lehtinen 1991). For example, a customer would be surprised if it is his first visit into Harrods, London's world-famous department store. It is assumed that dimensions of Harrods' physical surroundings influence customer behavior. However, the customer's initial judgment or perception decreases when visiting frequently. This is one reason why perceived service quality is considered when the development of brand equity is assessed in the services industry.

Perceptions of the physical service quality may simply help people to distinguish a service firm by influencing how it is designed (Bitner 1992; Brady, Cronin, and Brand 2002), while perceived service quality results from a comparison of perceived with expected performance (Brady and Cronin 2001). This is reflected in Grönroos's seminal conceptualization of service quality that "puts the perceived service against the expected service" (1984: **37). Per**ceived service quality addresses "what the customer is left with when the production process is finished" (Grönroos 1984: 38). It is the relevant feature that customers evaluate after service delivery (Rust and Oliver 1994).

Finally, in the Gap Model and its associated SERVQUAL measures, physical quality is a component of overall service quality. Moreover in recent studies (e.g., Baker et al. 2002), aspects of the physical environment lead to perceptions of merchandise and service quality. However, Mattila (1999) found that customers with a Western cultural background might be more likely to rely on physical cues than Asian customers. Zhao, Bai and Hui (2002) also found that although the SERVQUAL scale is the most popular and widely used instrument for measuring service quality, its applicability still requires investigation. Based on the above review of the literature, two types of service quality should have different
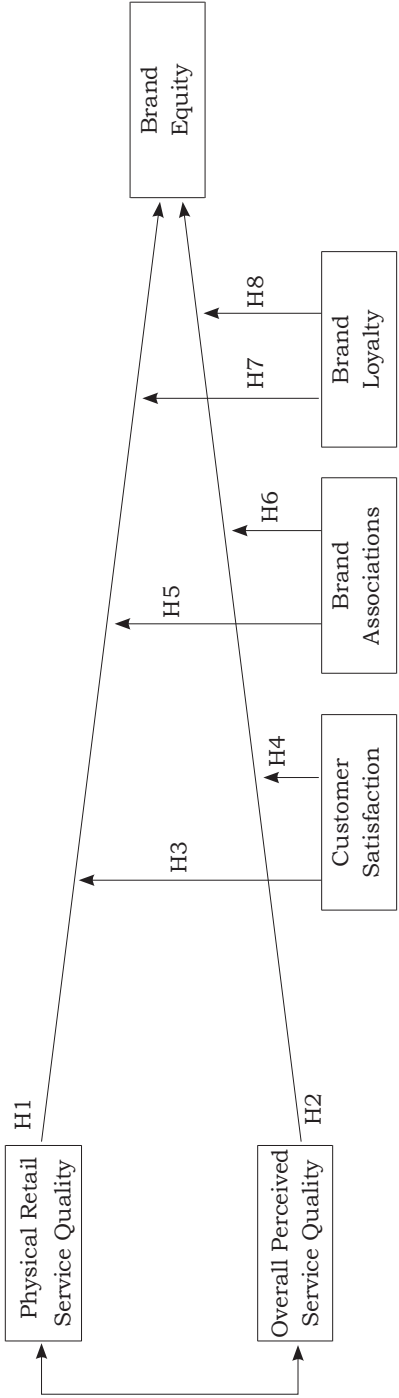
Figure 1. Conceptual Model.

effects on brand equity if consumers' perceptions rely on physical cues or cognitive judgments.

CONCEPTUAL MODEL

The hypothesized model proposes that two types of service quality affect brand equity. Three factors are proposed to moderate the relative strength of the relationships between two types of service quality and brand equity. Our conceptual framework, shown in Figure 1, applies theories from cognitive and environmental psychology together with Zeithaml's (1988) proposal that consumer perceptions, which drive store patronage intentions, are based on perceptions of service quality. Figure 1 also adapts the model proposed by Baker et al. (2002) to a retail setting and incorporates insights from Bitner's (1992) conceptualizations of how the service environment can influence store brand equity. Thus, the following text offers our rationale for the proposed relationships between these constructs.

Service Quality and Brand Equity

A variety of definitions for brand equity are offered in the literature (e.g., Aaker 1991, 1996; Keller 1993). For example, Keller (1993: 2) proposes that customer-based brand equity is "the differential effect of brand knowledge on consumer response to the marketing of the brand." Brand equity has other definitions and forms, such as favorable impression, attitudinal dispositions, and behavioral predilections (Rangaswamy et al. 1993). A common problem is that brand equity may be defined differently by different people. Most scholars seem to view equity as multi-dimensional, consisting of some combination of awareness, liking, preference, meaning, repeat purchase, etc. But no single method of conceptualizing and measuring brand equity may be applicable to all brands (Kartono and Rao 2005). Since consumer response in marketing is defined in terms of consumer perceptions, preferences, and behavior arising from marketing mix activity (Hartman and Spiro 2005), brand equity in this study is conceptually defined as the overall consumer response to the primary predictors of brand purchase intent and behavior.

We define service quality according to the two types identified in previous studies (e.g., Bitner 1992; Dabholkar et al. 1996; Lehtinen and Lehtinen 1991). Perceived service quality is defined as the shopper's overall perception of the superiority of services provided by a service firm. Environmental psychologists argue that a critical role of the physical environment is its ability to facilitate the goals of persons within that environment (Canter 1983; Grewal et al. 2003). Similarly, physical retailing service quality is viewed as the shopper's perception of physical elements that enable or facilitate the production of a service. As service quality is identified as a dimension of brand equity, such dimensions of service quality have the potential to contribute differentially to brand equity. More specifically, quality perceptions on both dimensions of service are likely to be positively associated with customers' behavioral intentions on **a specific brand (or organization) and their likelihood of remain**ing a customer (Bell et al. 2005; Cronin, Brady, and Hult 2000). To the extent that both physical and perceived quality contributes to the improvement of brand equity, the following hypotheses are suggested:

> **H1:** Physical retailing service quality will be positively related to brand equity.
> **H2:** Overall perceived service quality will be positively related to brand equity.

The Moderating Role of Customer Satisfaction

Over the years, numerous definitions of satisfaction have been proposed by marketing scholars. After reviewing the literature on satisfaction, Oliver (1997: 28) concludes that the wide variation in defining the factor of satisfaction was best reconciled in the definition of satisfaction as "the summary psychological state resulting when the emotion surrounding disconfirmed expectation is coupled with a prior feelings about the customer experience." In this study we define satisfaction as a summary affective response of varying intensity after the customer frequently visits a facility.

To date, most of the available evidence examines the direct relationship between satisfaction and brand equity (Aaker 1991; Berthon et al. 2001; Tax, Brown, and Chandrashekaran 1998). Several studies offer both theoretical justification and empirical evidence

which supports the mediating role of satisfaction between service quality and behavioral intentions (Anderson, Fornell, and Lehmann 1994; Brady and Robertson 2001) on the basis of the appraisal-emotion response-coping framework suggested by Bagozzi (1992). We anticipate that satisfaction will reinforce the overall positive effects of physical and perceived service quality on customers' perceptions that are clearly a precursor to behavioral manifestations of brand equity. Satisfaction helps customers to overcome inevitable fluctuations for building brand equity (Anderson, Fornell, and Lehmann 1994). Accordingly, organizations can improve brand equity in situations where their satisfied customers equally perceive two different types of service quality.

Despite a reduction in service quality, customers remain with the organization because of perceived switching costs (Bell et al. 2005; Urbany 1986). In this case, if a customer perceives low switching costs, the customer is likely to switch to alternative brands or competitors. On the other hand, if a satisfied customer perceives low switching costs, the customer may hesitate to switch because satisfaction is positively related to the market's experience with quality in the most recent period (Anderson et al. 1994). Equally, we would argue that satisfied customers would scrutinize more carefully the quality of the service they perceive in forming ongoing further behavior with an organization. Based on this reasoning, we hypothesize the following:

> **H3:** The positive relationship between physical retailing service quality and brand equity is moderated by satisfaction.
> **H4:** The positive relationship between overall perceived service quality and brand equity is moderated by satisfaction.

The Moderating Role of Brand Associations

Brand associations are central to brand equity. In conceptualizing brand equity, Keller (1993) depicts attitudes as the most abstract and highest level of brand association. Brand equity is closely related to brand knowledge which he defines in terms of brand awareness and brand image. Both awareness (recall and recognition) and image relate to brand associations held in a customer's memory. In this study, brand awareness is incorporated into brand association (e.g., Aaker 1996; Rossiter and Percy 1987; Yoo

et al. 2000). From a measurement standpoint, brand awareness, familiarity, and brand image are all considered to be brand associations, and are viewed as primary customer-based brand equity facets, consistent with several previously proposed brand equity frameworks (Aaker 1996; Blackston 1995; Keller 1993, 1998; Netemeyer et al. 2004; Yoo et al. 2000). Thus, this study defines brand associations as the set of memory based meanings associated with a brand name.

Since consumers who are more experienced with a brand develop deeper knowledge structures related to multiple dimensions (Alba and Hutchinson 1987), we believe that experienced consumers are likely to hold favorable and strong perception of quality of that brand, compared to less experienced consumers. Consistent with Hartman and Spiro (2005), the idea of differential effect is tied to the category-based information processing arguments made by Keaveney and Hunt (1992). These suggest that associations held in a consumer's memory are not necessarily classified in isolation, but are a relevant evaluation based upon the strengths of the information links to similar, yet distinct, categorization schemas. Such associations should be related to the linkage of service quality → brand equity, which seems to indicate that perceived quality is one key dimension of brand equity. The linkage will better capture the moderating effects of brand associations on consumer behaviors and beliefs as well as brand performance. Thus, the following hypotheses are reached:

> **H5:** The positive relationship between physical retailing service quality and brand equity is moderated by brand associations.
> **H6:** The positive relationship between overall perceived service quality and brand equity is moderated by brand associations.

The Moderating Role of Brand Loyalty

Generally, brand loyalty is defined as "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior" (Oliver 1999: 34). While there may be a distinction in loyalty measures between attitudinal loyalty and behavioral loyalty, Olsen (2002)

points out that loyalty is commonly assessed by behavioral measures rather than attitudinal measures. Based on this reasoning, brand loyalty is conceptualized as behavioral response expressed by a composite measure with respect to a preferred product or service in the future.

Even though we can expect that two types of service quality have a positive impact on brand equity, we expect another possible structure in such a way that brand loyalty acts as a moderator between service quality and brand equity. Our hypothesis is that the strength of the moderating effect between service quality and brand equity will be greater in a situation where the link between the two constructs is somewhat limited. For example, Chinese consumers perceive the importance of service quality (Tsang and Qu 2000), but the standard of quality for services provided by department stores is still far below international standards. In that case, customers are likely governed by different process mechanisms that will require specially tailored marketing actions for their cultivation and management over time (Fournier and Yao 1997). If so, the positive relationship between service quality and brand equity is the idea of an organization as an asset. A complete understanding of the moderating effect of brand loyalty would be an essential concept for the development of more sophisticated brand equity process. Thus, the final hypotheses are arrived:

> **H7:** The positive relationship between physical retailing service quality and brand equity is moderated by brand loyalty.
> **H8:** The positive relationship between overall perceived service quality and brand equity is moderated by brand loyalty.

METHOD

Data Collection

Data was collected for the retailing service industry in department stores. The customers purchased their products during March to June of 2007 in two major cities of China. Department stores were chosen because customers' evaluations were directly linked to these two types of services managed by the firms. The wide variety of service types in department stores allows for

variance on the relevant independent and dependent variable.

For data collection efforts, respondents were screened before the questionnaire was administered to make sure that they were familiar with the service context in question. For the research survey, respondents were intercepted in the customer service lounge at targeted multiple stores. This method of sampling was chosen because it was easy to target respondents with previous service experience. The main criteria for selecting participants for the sample was a minimum of two years experience shopping at department stores with at least five purchases during that period. Trained interviewers indicated the information would be used by university researchers and offered assurances of confidentiality.

Self-administered surveys were distributed to 350 current customers from the selected industries. After accounting for sample bias and missing data, this study used a total of 282 questionnaires, which represents a 80.5% response rate. Respondent demographic characteristics showed that approximately 53% of the group was female and 21% were older than 41 years of age.

Following Armstrong and Overton's suggestion (1977), we assessed non-response bias through a series of t-tests that compared early (responses to the initial survey) with late (responses to the follow-up survey) respondents in terms of all key constructs. The results suggested that there was no significant difference between early and late respondents on the key variables.

Measures

Six factors were measured using twenty-one questions (responses on five-point Likert scales) adapted from published scales (see Table 1 below). Three moderating constructs were measured as follows: customer satisfaction, with two items adapted from Ragunathan and Irwin (2001); brand associations, with five items adapted from Yoo et al. (2000) and Low and Lamb (2000); brand loyalty, with three items adapted from Yoo and Donthu (2001). Two types of service quality were also measured as follows: physical retail service quality, with four items adapted from Dabholkar et al. (1996); overall perceived quality, with three items adapted from Yoo et al. (2000). Brand equity was measured with four items adapted from Lasser et al. (1995) and Yoo et al. (2000).

All survey questions were originally written in English and trans-

Table 1. Results of the CFA Analysis

Constructs	Loading	T-value	CR	AVE
Satisfaction			.89	.80
Overall I am satisfied with specific experiences with the store.	.74	11.68		
I am satisfied with my decision to purchase from this store.	.79	12.65		
Brand Associations			.87	.59
I am aware of the store.	.74	11.82		
I can recognize the store among other competing department stores.	.71	11.52		
XXX is a brand of department store I am very familiar with.	.67	10.85		
I have difficulty in imagining the store in my mind.	.65	10.55		
I think this store is valuable.	.68	11.13		
Brand Loyalty			.87	.68
This store would be my first choice.	.74	11.72		
I consider myself to be loyal to this store.	.77	12.53		
I will not purchase other stores if the product is available at the store.	.71	11.48		
Physical Retail Service Quality			.88	.65
The physical facilities of the store are visually appealing.	.76	11.79		
The store has a pleasant shopping environment.	.73	11.96		
The interior furnishing in the store gives the shopper the appearance and feeling of a quality store	.74	11.75		
The display layout at this store makes it easy for customers to find what they need.	.72	11.64		
Overall Perceived Quality			.83	.63
The store is of high quality.	.69	10.18		
The likelihood that the store is reliable is very high.	.63	9.41		
The likely quality of the store is extremely high.	.71	10.40		
Brand Equity			.88	.65
I can expect superior performance from the store I am evaluating.	.80	11.17		
Even if another store has same features as this store, I would prefer to use the store.	.78	10.94		
It makes sense to repurchase products at this store instead of any other store, even if they are the same.	.66	9.83		
What I get from the department store of products is worth the cost.	.68	9.96		

Department Store: α^2(df) = 484.937(174); NFI = .974; CFI = .983; TLI = .978; RMSEA = .071

Note: CR indicates composite reliability.

lated into the Chinese version. To make sure that the translation was accurate, the translation and back-translation method was utilized. As the translation should be written in the appropriate Chinese language spoken by a Chinese population at the specific time, two researchers were consulted on the wording and understanding of the Chinese language survey. Overall, there was an acceptable good fit between the back-translated versions and the original version, indicating that the Chinese survey had a high level of translation quality.

Control Variable

We controlled for gender as the characteristic has been shown to moderate the relationship service quality and loyalty. For example, Bell et al. (2005) and Babakus and Yavas (2008) found that for the same level of two types of service quality, customer loyalty is influenced by gender difference. In this study, we asked respondents to indicate their gender as either male (1) or female (2). This study carries implications regarding the relevant importance of physical and perceived service quality as drivers of brand equity within and between sexes.

RESULTS

Measurement Model

We first assessed the measurement model followed by hypotheses testing according to the guidelines suggested by Anderson and Gerbing (1988). We conducted exploratory and confirmatory factor analysis (CFA) to test for convergent validity. First, from a statistical perspective, the item-total correlation was considered, and values that were well below other item-total correlations were targeted for deletion. Next, based on initial CFA results, any item that loaded less than 0.50 on its intended construct were candidates for deletion. As a result of applying these guidelines, one item from the original brand equity scale was dropped from the original pool of items.

When the resulting pool of items for satisfaction, brand association, brand loyalty, physical retail service quality,

Table 2. Discriminant Validity (*N* = 282)

	1	2	3	4	5	6	M	SD
Department Store								
1. Satisfaction	**.80**						3.61	.86
2. Brand Association	.47	**.59**					3.68	1.06
3. Brand Loyalty	.54	.40	**.68**				3.57	1.07
4. Physical retail service quality	.52	.38	.44	**.65**			3.61	1.01
5. Overall perceived quality	.50	.37	.42	.41	**.63**		3.62	.96
6. Brand Equity	.52	.38	.44	.42	.41	**.65**	3.48	1.09

Note: The diagonal entries (in bold italics) represent that the average variance extracted by the dimension; The off-diagonal entries represent the variance shared (squared correlation) between the dimensions

Table 3. Assessment of Main Effects and Moderating Effects

Hypotheses	Model 1		Model 2		Model 3	
	b	T–value	b	T–value	b	T–value
Controls						
Gender	.190	3.240*	.090	1.996**	031	.779 (ns)
Main effects						
Physical retail service quality (PRSQ) (H1)			.322	5.735*	.409	1.864**
Overall perceived service quality (OPSQ) (H2)			.403	7.111*	.032	.148 (ns)
Two-way interaction effects						
Satisfaction (SA) × PRSQ (H3)					.197	2.881*
Satisfaction (SA) × OPSQ (H4)					.111	1.605 (ns)
Brand Associations (BA) × PRSQ (H5)					.038	.423 (ns)
Brand Associations (BA) × OPSQ (H6)					.078	.863 (ns)
Brand Loyalty (BL) × PRSQ (H7)					.173	2.457**
Brand Loyalty (BL) × OPSQ (H8)					.077	1.252 (ns)
R^2	.036		.450		.611	
Adjusted R^2	.033		.444		.598	
F-model	10.495*		75.567*		47.207*	
ΔF			104.221		18.612	
[1]Effect size (ES)			.752		.413	

*Significant at $p < 0.01$ level.

**Significant at $p < 0.05$ level.

[1] $ES = R^2_{IM} - R^2_M / 1 - R^2_{IM}$

where IM = interaction model and M = main-effect model.

overall perceived quality, and brand loyalty were subjected to an exploratory factor analysis with the principal factor as the extracted method followed by a varimax rotation, six factors emerged that corresponded to how we had initially measured these constructs.

We further subjected the resultant pool of items to a CFA using AMOS 6.0 with the covariance matrix as input. The measurement model suggested good fit to the data, $x^2(174) = 484.937$, $p < .01$, Comparative Fit Index (CFI) = .983, Non-Normed Fit Index (NNFI) = .978 and root mean square error of approximation (RMSEA) = .071. The results of the CFA with factor loadings and t-values are summarized in Table 1.

All factor loadings were relatively high and significant, providing strong evidence for convergent validity (Bagozzi and Yi, 1988). Support for convergent validity is also demonstrated by the high average variance extracted (AVE) for all four constructs (Bagozzi and Yi 1988). All AVEs exceeded the recommended level of .50, rating from .59 (brand associations) to .80 (satisfaction).

Discriminant validity was assessed by calculating the shared variance between pairs of constructs and verifying that it was lower than the average variances extracted for the individual constructs (Fornell and Larcker 1981). As shown in Table 2, the shared variances between pairs of all possible scale combinations indicated that the variances extracted were higher than the associated shared variance in all cases.

Hypotheses Testing Results

We used hierarchical moderated regression analysis to test our hypotheses (Cohen 1988). In doing so, two models were developed. One is the "main-effects model" excluding interaction terms and the other is the "interaction model" including the interaction effects. All scales were averaged to form a composite. Once the composites were formed we mean centered the constructs to avoid any potential threat of multicollinearity when calculating the interaction terms (Aiken and West 1991).

In Table 3, Models 1 to 3 used brand equity as the dependent variable. We used Model 1 to test the effects of the control variable on brand equity, and then added the main effects of the antecedent variables (physical retailing service quality and overall perceived

service quality) in Model 2, which contributes 45% more variance explained than the control variable. Model 3 (R^2 = 61.1%, ES = .41) included the control variable, main effects, and the hypothesized two-way interaction terms. We find that the value of ES in our model is 0.411, which is larger than the suggested threshold of 0.15 (Cohen 1988), indicating that Model 3 is valid. In particular, Model 3 shows the results of our hypotheses testing. Two in six interaction effects were significant, adding an additional 16 percent to the explanatory power of the model. No control variable approached significance.

Before discussing the findings for the specific hypotheses, we discuss the effects of covariates, main effects, and interaction tests. In terms of a control variable, gender had an insignificant relationship with brand equity. Either Model 1 or Model 2, however, was significantly related to brand equity. This indicates that its inclusion do not affect the sign of brand equity when considering the moderating effects.

For main effects, H1 and H2 stated that physical and overall perceived service equality would be positively related to brand equity. This is a test of the main effects of the different types of service quality on brand equity. H1 was supported in the effect of physical retailing service quality (b = .409, p < .05). Yet, overall perceived service quality (H2) did not affect brand equity. It is worth noting that the effect of physical retailing service quality is greater than the effect of overall perceived service quality on brand equity at least in the department store industry.

We now turn our attention to the moderating effects that satisfaction, brand associations, and brand loyalty have on the above main effects. H3 and H4 proposed that the positive relationship between two types of service quality and brand equity was moderated by satisfaction. The moderating effect of satisfaction between physical retailing service quality and brand equity (H3) was significantly supported (b = .197, p < .01), while the same effect between overall perceived service quality and brand equity was not supported. H5 and H6 proposed that the positive relationship between two types of service quality and brand equity was moderated by brand associations. Contrary to expectations, however, both interaction effects between two types of service quality and brand equity did not approach significance.

H7 and H8 proposed that the positive relationship between two

types of service quality and brand equity was moderated by brand loyalty. As we expected, H7 was significantly supported at *p* < .05 (b = .173). However, the moderating effect of brand loyalty between overall perceived service quality and brand equity (H8) did not approach significance. Overall, our moderating effects showed that satisfaction and brand loyalty were key moderators to facilitate the relationship between physical retailing service quality and brand equity.

DISCUSSION

The results of our study should add to the service literature on brand equity, indicating that service quality differentially affects brand equity. Although perceived service quality has been considered as one of dimensions on brand equity (Aaker 1996; Berry 2000; Keller 1993; Yoo et al. 2000), our findings provide a somewhat different perspective than does previous literature on how physical retailing service quality should be linked and how moderators should affect relationships between two different types of service quality and brand equity. Specifically, there are different results between two types of services quality on brand equity. Physical retailing service quality is significantly related to brand equity, while perceived service quality is not related to brand equity. Although two types of service quality are positively linked to brand equity, perceived service quality is somewhat problematic when considering the moderating effects. The findings suggest that combining physical retailing service quality with moderators such as satisfaction and brand loyalty may be a suitable strategy to reinforce brand equity.

Our results show a consistent pattern of findings for the moderating effects of satisfaction and brand equity. These two moderators only play a critical role in enhancing the relationship between physical retailing service quality and brand equity, while these moderating effects are limited to enhancing the relationship between perceived service quality and brand equity. As the physical aspects of department stores do influence customers' service quality perceptions (Dabholkar et al. 1996; Wakefield and Blodgett 1999), one explanation for this finding may be that perception of high physical service quality leads to brand equity because it is

the basis of satisfaction (Oliver 1997) and brand loyalty (Yoo and Donthu 2001).

Theoretical and empirical data from environmental psychology suggests that customer reactions may be more emotional than cognitive (Russell and Pratt 1980; Wakefield and Blodgett 1999). Given that the relationship between physical service quality and brand equity is moderated by the impact of satisfaction, our finding should contribute to the literature where customer response to physical service settings is enhanced by emotional factors such as satisfaction. This finding suggests that a key managerial objective in department store settings is to produce positive satisfaction, which in turn leads to patronage intentions and favorable actions.

In addition, both the insignificant main effect of perceived service quality on brand equity and the insignificant moderating effect of brand associations are interesting. Because both constructs are closely related to customer's cognitive processes (e.g., perception and knowledge), their impacts are significantly limited to brand equity, at least in a Chinese context. As shown in Model 2, however, it is found that perceived service quality may influence brand equity in situations where customers are likely to engage in their repeat behavior on the basis of past performance.

Several managerial implications emerge from this study. First, department stores must pay attention to the physical element in their store design in order to enhance brand equity for their existing customers. However, it is important to note that marketers invest in their marketing budget to improve physical environments because organizations tend to be overlooked by marketers lured to the bright lights of Beijing or Shanghai (Willis 2008). Of course, the strategy is desirable, but marketers may also focus on other shoppers who live in a range of second-tier cities who may have different perceptions on service judgments.

Second, although overall perceived service quality is limited to influencing brand equity, it has often been pointed out that evidence about the profit consequences of perceived service quality stemming from other sources has been found (Zeithaml 2000). Thus, at a more practical level, the implication of this study is simply that marketers could incorporate the positive effect of physical service quality into facilitating the synergy effect with overall service quality. As service quality has proved to be an essential ingredient to convince customers to take further

activity, the solution is to improve the experience-based cognitive service perceptions, and in turn, enhance the environment-based emotional service perceptions. Because most shoppers are repeat customers in the department store industry, the strategies are on the basis of the appraisal-emotion response-coping framework suggested by Bagozzi (1992).

LIMITATONS AND DIRECTIONS FOR FURTHER RESEARCH

As with any empirical study, our study also has some limitations, which may provide other promising avenues for further research. The study's focus on retailing services may limit the extent to which the findings can be generalized. It is plausible that the nature of the observed relationships would change with services that are higher or lower in credence properties (e.g., higher private hospital, top-quality hotel, and legal services, respectively) as the potential for customer building expertise is like to vary significantly across these industries (Bell, Auh, and Smalley 2005). This could provide insights on the possible generalization of physical service quality when researchers focus on the development of brand equity process. This would be an important extension of the current study.

The parsimony of the proposed model might suggest that we have omitted possible some interrelationships between two types of service quality and three moderating variables that could help explain brand equity. There may be some relationships beyond the moderating effects that will influence the creation of brand equity. Further research might consider possible relationships that determine brand equity to the organization, particularly in industries where the physical service quality is emphasized.

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