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Toward a measure of Chinese hypermarket retail service quality

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Success in the increasingly competitive and significant Chinese hypermarket sector requires a systematic focus on service quality. Current measures of hypermarket retail service quality do not adequately capture how the Chinese customers evaluate their experience. This study describes the development of an instrument to measure hypermarket service quality suitable for customers socialised to Chinese culture. Drawing on existing exploratory work, we propose dimensions of Chinese hypermarket service quality and associated items to measure our proposed construct. Confirmatory factor analysis, using a second sample, confirms the dimensionality and validity of our proposed scale with 4 dimensions and 18 items.

Keywords: Chinese hypermarket; retail service quality; exploratory factor analysis; confirmatory factor analysis

1. Introduction

The Chinese diaspora reaches across China, Singapore, Taiwan, Korea, and Hong Kong, spreading a culture founded in Confucian and Taoist philosophies (Hofstede & Bond, 1988; Hwang, 2011). Among these, China houses over 20% of the world's population and their economy is anticipated to exceed that of the USA by 2016 (International Monetary Fund, 2012). Hypermarkets are a prominent feature in the rapidly growing retail sector.

Both large international and indigenous chains of hypermarkets use customer service to seek success in this increasingly competitive market (Goldman, 2000). This marks the importance of service quality to both managers and researchers as it provides a route to profitability (Reicheld, 2001). Success requires managers to understand how customers evaluate service quality under the distinct nature of Chinese culture and the fundamental assumptions it makes about the world.

Western service quality metrics, such as SERVQUAL (Parasuraman, Berry, & Zeithaml, 1991; Parasuraman, Zeithaml, & Berry, 1988) or the retail service quality scale (Dabholkar, Thorpe, & Rentz, 1996) have been widely adopted (Khare, 2013; Lai & Wu, 2011; Lopez-Toro, Diaz-Munoz, & Perez-Moreno, 2010; Pakdil, Ism, & Genc, 2012; Ramakrishnan & Ravindran, 2012; Shieh, Wu, & Huang, 2010; Srivastava, Sharfudin, & Datta, 2012; Wu & Hsieh, 2012). In non-Western contexts, they lack the ability to capture meanings inherent to service quality for the Japanese (Winsted, 1997) or Chinese customers (Kettinger & Lee, 1994; Meng, Summey, Hendon, & Kwong, 2009; Tse & Ho, 2009; Zhao, Bai, & Hui, 2002). The service quality dimension of reliability, for example, while central to the Western notion of service quality (Zeithaml, Parasuraman, & Berry,

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1990) is of much less consequence in the Chinese customers' mind (Furrer, Liu, & Suharshan, 2000). This reflects the inability of these Western measures to capture the central and underlying meanings that make up the Chinese service quality construct (Smith & Reynolds, 2002).

Researchers conclude that we need completely new approaches to specify and measure service quality for Chinese customers (Imrie, Cadogan, & McNaughton, 2002; Kettinger & Lee, 1994; Meng et al., 2009). So far, few researchers examine non-Western interpretations of service quality. Exploratory qualitative work reveals that the dimensions of service quality for Chinese customers are distinct from their Western counterparts (Imrie et al., 2002; Stanworth, 2009). Imrie et al. (2002) reported 7 dimensions and 20 sub-dimensions, while Stanworth (2009) revealed 17 dimensions and 37 sub-dimensions of Chinese retail service quality.

These service quality dimensions advance the understanding about how Chinese retail customers evaluate service quality, of which managers require a more parsimonious definition that directs managerial actions. Critically, neither of these studies addresses the issue of measurement; which are central to the managerial processes of understanding and improving the customer experience in hypermarkets. This motivates the purpose of our study, which is to arrive at a robust dimensionality and associated measurement items of Chinese hypermarket service quality. This serves the needs of both managers as they seek improvements in the customer service experience and researchers seeking context-specific understanding of service quality.

This paper is organised as follows. Section 2 reviews the literature related to service quality and how the Chinese customers interpret this phenomenon. Section 3 outlines our research method. Section 4 reports our findings of a dimensionality of Chinese hypermarket service quality and supports validity and reliability testing of our proposed model. Finally, Section 5 concludes by presenting management and research implications of our findings.

2. Literature review

2.1 Service quality

Customers' evaluations of service quality, conceptually, cover both the *process* of service delivery and its resulting *outcomes* (Grönroos, 1984). More specifically, evaluation in service quality is understood as an attitude based on customers' perceptions of a dimensionality (Brady & Cronin, 2001). The SERVQUAL model (Parasuraman et al., 1991, 1988) is presented as a scale based on five dimensions of service quality, i.e. reliability, assurance, tangibility, empathy, and responsiveness. This model is a robust framework of these five easily understood dimensions that, combined with claims of good reliability and validity, readily lends itself to refining the customers' service experience. This work spawned a significant research agenda that has dominated the consumer service area for over two decades (Ladhari, 2009).

Researchers were expected to adapt the generic measure of service quality to specific industries. A notable number of sector-specific measures emerged including those for hospitality (Knutson, Stevens, Wullaert, & Yokoyama, 1990), libraries (Cook, Heath, & Thompson, 2002), travel agencies (Seto-Pamies, 2012), internet banking services (Santouridis, Trivellas, & Reklitis, 2009), urban transportation system service quality (Wang, Feng, & Hsieh, 2010), and hypermarkets (Dabholkar et al., 1996). Each study is a clear variant of Parasuraman et al.'s (1988) interpretation, but includes distinct

industry-specific references along with new insights into the phenomenon of service quality.

The SERVQUAL model and its variants play a substantive role advancing a conceptualisation and measurement of service quality. However, the approach draws four broad criticisms (Buttle, 1996; Calabrese & Scoglio, 2012; Morrison, 2004; Smith, 1995). First, dimensionality concerns where numerous studies fail to substantiate the underlying dimensions reported by Parasuraman et al. (1988). Second, measurement focuses where psychometric problems affect the reliability and discriminant validity of the scale. Third, researchers argue that there is a lack of sufficient conceptual underpinning to the model. More recently, a fourth concern emerges from the explanatory power of the SERVQUAL model and its variants in non-Western contexts.

Exploratory researchers find that the significance of service quality dimensions varies under different cultural characteristics (Donthu & Yoo, 1998; Furrer et al., 2000). For example, tangibility is of greater significance to Western rather than Asian customers. Asian customers may expect to receive more personalised dimensions of service hedonic elements which are significant to Western customers (Mattila, 1999). Since we lack studies on how customers in different countries evaluate services, researchers apply SERVQUAL without discriminating against distinct customer groups, such as the Chinese.

2.2 Applications of service quality models in Chinese settings

Studies applying the SERVQUAL model in Chinese settings reveal four main limitations. First, studies reveal low levels of measurement equivalence. Studies report comparatively low levels of internal consistency in applying SERVQUAL model in discount stores in Korea (Kim & Jin, 2002), education of Chinese students (Barnes, 2007), and department stores in China (Zhao et al., 2002). This suggests that the original SERVQUAL model interprets differently in these Chinese contexts and this lack of construct equivalence questions, i.e. the transferability of the meaning, is inherent in the SERVQUAL model for Chinese customers (Smith & Reynolds, 2002).

Second, the dimensionality of the SERVQUAL model lacks support in Chinese contexts. Zhao et al. (2002) found that many items did not clearly load to any anticipated dimensions and all negative worded items merged into one factor. They concluded that their results did not support the dimensional structure of SERVQUAL model in service quality. Lam (1997), examining Chinese patients' perceptions on healthcare services, could not confirm the SERVQUAL dimensionality by treating the 22 measurement items as a composite set of individual measures. Zhou, Zhang, and Xu (2002) pointed out that the original five dimensions of the SERVQUAL model were inappropriate and then adopted a three-dimension solution to explain Chinese banking service quality. Lam (2002), also examining customers in banking, found six dimensions, which were clearly distinct from the original five SERVQUAL dimensions that may require considerably different interpretations.

Third, the dimension of reliability is markedly difficult to substantiate. Reliability is understood in the Western context as the most significant to the constitution of service quality in the customers' mind (Zeithaml et al., 1990). However, studies that draw on samples from Chinese customers found that this dimension fails to emerge clearly (Warden, Stanworth, Chen, & Hwang, 2012; Zhao et al., 2002; Zhou et al., 2002). Therefore, this fits with the notion that this dimension lacks the critical defining importance it holds in the Western world (Furrer et al., 2000; Mattila, 1999).

Fourth, new dimensions are needed to explain service quality for Chinese customers. Researchers argue that the SERVQUAL model is not an exhaustive explanation of service quality in the Chinese settings and so new dimensions are required to explain the construct in this context. Kettinger and Lee (1994) argued for the inclusion of an 'Asian factor' to explain service quality in Hong Kong, while Winsted (1997) surfaced new dimensions, important to this construct, for the Japanese. Meng et al. (2009) went further to argue that a whole new construct needs to be developed to explain Chinese service quality.

These points lead to the conclusion that the SERVQUAL model is an inaccurate specification of service quality for Chinese customers. The assumption of the universal relevance of SERVQUAL model is naïve (Calabrese & Scoglio, 2012; Imrie et al., 2002; Warden et al., 2012) in a way that fails to account for cultural influences on thoughts, behaviours, and evaluations that are central to the social phenomenon of interpersonal service encounters. It is clear that culture plays a more significant role in evaluating service quality (Tse & Ho, 2009).

2.3 Chinese context

The Chinese are characterised generally as collectivist (Hofstede, 1991), or more precisely, as interdependent (Markus & Kitayama, 1991), as they draw on a culture based on relationalism (Ho, 1998; Hwang, 2000). This specifies a moral expectation to extend beyond the less (individuated) self to an awareness and empathy with others (Yang, 2006). Chinese naturally feel a moral imperative to incorporate social-contextual factors (particularly relevant others) into their thoughts and evaluations of a target object (Bedford & Hwang, 2003). Researchers identify a number of constructs to explain the Chinese, and the notions of connection (*guanxi* – 關係) and harmony (和諧) are particularly relevant to service quality evaluations.

Connection relates to a state in which entities (objects, forces, or human beings) are connected (Chen & Chen, 2004). It can be understood through the instrumental and affective ties that exist between individuals. The instrumental component of connection (inferring distance) relates to the pragmatic process of exchange, while the affective (inferring closeness) embodies feelings of warmth, affection, and attachment (Hwang, 1987). Individual's *guanxi* states can vary significantly, particularly in the context of the often impermanent connections between providers and service customers (e.g. between a clerk and a customer).

Harmony or balance, a complex notion in Chinese, emphasises a firm belief in the peaceful co-existence of individuals (Li, 2006). Individual empathy lays the expectation of trying to avoid behaviours that may cause inconvenience or discomfort to others. That is, people tend to attenuate individual demands since they may cause unforeseen difficulties for other parties. This fits within a process of high-context communication (Hall, 1992) whereby the coding and decoding of signals allow both parties in interactions to flexibly adjust their behaviours in a way that finds and that follows the natural and appropriate order of events.

Integrating the notion of connection and harmony means it is natural for Chinese customers to attenuate their attention on individual outcomes. Instead, they amplify their attention to the extent to which service is harmonious interpersonal process (Tong & Yong, 1998). Researchers start to surface the distinct nature of service quality in Chinese cultural settings.

2.4 Exploratory studies of SERVQUAL model in Chinese settings

We sought reports that were anchored in Chinese culture and, given the nascent understanding of this issue, they were by definition grounded and qualitative. We identify three studies of relevance. Feinberg, Ruyter, Trappey, and Lee (1995) sampled critical incidents of shopping experiences to arrive at 25 good and 29 bad service themes. Imrie et al. (2002), drawing on interviews with retail shoppers, found 7 dimensions and 20 sub-dimensions of service quality they refer to as the Confucian relational ethic. Stanworth (2009) sampled hypermarket customers in Taiwan to reveal 17 dimensions and 37 sub-dimensions of hypermarket service quality from customers' critical incident data.

These studies advance the understanding of service quality in a number of ways. First, they empirically support researchers' assertions that Chinese and Western customers have different interpretations of service quality (Meng et al., 2009). Second, the Western service quality dimension of reliability is not clearly present. Third, the Chinese dimensions of service quality emphasise interpersonal interaction over outcomes. This fits with Chinese attention to *guanxi* in the day-to-day process of getting things done. Fourth, these studies identify new dimensions that are not part of our portfolio of service quality measures for Chinese hypermarket settings.

These studies are exploratory and limited in a number of ways. While these studies sampled consumer experiences, they did not qualify the profile of the sectors. These findings are a preliminary statement about Chinese customer evaluations given the importance of sampling to research generally and the evidence of sector-specific variations in service quality. More specifically, Feinberg et al. (1995) made a comparison among the contexts of Taiwan, USA, and the Netherlands. For ease of comparison among these contexts, their study precluded native expressions (labels) that could embody meanings important in one culture and not present in another. This sheds doubt on how grounded these dimensions are in Chinese culture. Significant to the purpose of this study, a grounded and parsimonious set of dimensions and the specifics of measurement of Chinese hypermarket service quality have not been addressed.

3. Research methodology

We drew on Stanworth's (2009) qualitative study of hypermarket retail service quality to generate a comprehensive set of measurement items. Each item was measured by a five-point Likert-type scale ranging from 'strongly agree' with a value of five to 'strongly disagree' with a value of one. There were two stages for data collections and evaluations. In the first stage, the customers were from hypermarket group Carrefour in Taiwan with 386 effective questionnaires. The sample was then performed by exploratory factor analysis (EFA) to extract items with factor loading values greater than 0.5. Later, the remaining items were evaluated by exploratory factor analysis again to extract dimensions. Further, the Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's test of sphericity were tested to show if exploratory factor analysis is appropriate.

In the second stage, the second sample was from hypermarket chain PX Mart with 377 effective questionnaires. The second sample was used to conduct confirmatory factor analysis (CFA) to evaluate the stability of the relationship between the structural factors and measurement variables from the aforementioned exploratory factor analysis and verify if the cross validity exists in this developed scale. Four models of CFA based on Doll, Xia, and Torkzadeh (1994) were used and goodness-of-fit (GFI) indices were compared to select the best model fit in terms of root mean square error of approximation (RMSEA), normed fit index (NFI), GFI index, and comparative fit index (CFI). The

convergent validity of the selected model was evaluated by average variance extracted (AVE) and composite reliability (CR) values. Finally, the discriminant validity of the dimensions was assessed by the squared inter-dimension correlations for each pair of dimensions with the AVE estimate for each dimension.

4. Research results

4.1 Development of measurement items for scale

This study uses Stanworth's (2009) qualitative study with Chinese cultural settings as a basis to eventually develop 29 measurement items for hypermarket retail service quality depicted in Table 1. In addition, these items have been modified in wording and tested by two scholars and two graduate students. Therefore, this scale has content validity.

4.2 Factor analysis

This study uses convenience sampling to collect data by surveying customers from two hypermarkets in Taiwan. The first sample was from Carrefour in Changhua City, Taiwan, operating in partnership with the local conglomerate Tong-Yi. A total of 400

Table 1. Twenty-nine items developed.

Number	Item
1	The service employees' attitude is Chinchieh
2	The service employees always smile
3	Service employees active solve customers' problems
4	The customer service centre provides comprehensive services
5	The product price is very reasonable
6	The retailing store has a clear sign to show where the product is
7	The retailing store has a clear sign to show information of products
8	I can buy whatever I want here (one stop shopping)
9	Employees actively ask about customers' needs
10	Employees politely and responsibly reply customers' suggestions and comments
11	Customers' personal information and privacy are totally secured
12	The total amount of money I have to pay is correct
13	Employees can answer every question correctly
14	The speed of checkout is fast
15	The promotion events are consistent with the information on their DM
16	They always replenish quickly
17	Their policy and procedures are human-oriented
18	The environment inside and near the store is clean
19	The store has a clear sign (e.g. product location, parking space, ATM, locker, and exit route)
20	The product quality is reliable and these is no overdue food
21	The vegetable and cooked food are very fresh
22	Service employees do not deal with the problems in the rude ways
23	Service employees do not ignore the complaints of the customers
24	Service employees always provide service to the customers
25	They have an adequate number of service employees
26	Service employees do not refuse to response customers' requests
27	The information on the web and DM are updated in a timely basis
28	Service employees can quickly respond to customers' comments
29	The service employees (and the store) would not over hard sell

Note: DM, direct mail, ATM, automated teller machine.

questionnaires were issued, but the valid questionnaires were 386, representing a 96.5% response rate. The second sample was from PX Mart chain stores in Changhua City. Four hundred questionnaires were issued, and 377 effective questionnaires have been received, indicating an effective response rate of 94.25%.

4.2.1 Exploratory factor analysis

Exploratory factor analysis was performed by the first sample size of 386 with the following two steps. First, principal component analysis was used to extract common factors and to retain the common factors with eigenvalues greater than one. Varimax solution was set as an orthogonal rotation for factor axes to maximise the variance of the squared loading of a factor on all the variables in a factor matrix. Eighteen of 29 questions have factor loading values greater than 0.5 as shown in Table 2, while 11 questions have factor loading values smaller than 0.5 or cross-loading. Therefore, these 11 questions were removed from further analyses.

Table 2. Results of exploratory factor analysis.

Scale items	Factor 1	Factor 2	Factor 3	Factor 4
SQ1 The service employees' attitude is Chinchieh	.76			
SQ2 The service employees always smile	.73			
SQ3 Service employees active solve customers' problems	.71			
SQ4 The customer service centre provides comprehensive services	.61			
SQ5 The retailing store has a clear sign to show where the product is		.80		
SQ6 The retailing store has a clear sign to show information of products		.78		
SQ7 Employees politely and responsibly reply customers' suggestions and comments	.53			
SQ8 They always replenish quickly			.60	
SQ9 Their policy and procedures are human-oriented			.71	
SQ10 The environment inside and near the store is clean			.65	
SQ11 The store has a clear sign			.72	
SQ12 Service employees do not ignore the complaints of the customers				.52
SQ13 Service employees always provide service to the customers				.60
SQ14 They have an adequate number of service employees				.61
SQ15 Service employees do not refuse to response customers' requests				.59
SQ16 The information on the web and DM are updated in a timely basis				.63
SQ17 Service employees can quickly respond to customers' comments				.70
SQ18 The service employees (and the store) would not over hard sell				.68
Eigenvalue	1.55	1.00	1.07	6.78
Cumulative % of variance	15.31	25.29	39.52	57.90
Cronbach's alpha	.76	.79	.74	.83

Second, repeat exploratory factor analysis procedures on the remaining 18 questions. Four dimensions were extracted with eigenvalues greater than one. The Kaiser–Meyer–Olkin measure of sampling adequacy value is 0.931. Bartlett’s test of sphericity is significant at the level of 0.01. All of the results show that exploratory factor analysis is appropriate (Hair, Anderson, Tatham, & Black, 1995). The specific information is summarised in Table 3.

Based on the item implications, these four dimensions are labelled as friendly anticipation of needs (SQ 1, 2, 3, 4, and 7), efficient shopping time (SQ 5 and 6), flexible and responsive procedures (SQ 8, 9, 10, and 11), and access to professional staff (SQ 12, 13, 14, 15, 16, 17, and 18). The total variance explained is 57.90%. The respective Cronbach’s α values of friendly anticipation of needs, efficient shopping time, flexible and responsive procedures, and access to professional staff are 0.76, 0.79, 0.74, and 0.83, indicating that these four dimensions have good internal consistency reliability.

4.2.2 *Confirmatory factor analysis*

The second sample with the sample size of 377 was used to conduct CFA in order to evaluate the stability of the relationship between our dimensions and measurement variables from the aforementioned EFA and verify the cross validity of the scale. There are four CFA models based on Doll et al. (1994), i.e. Model 1 with one first-order factor, Model 2 with four uncorrelated or orthogonal first-order factors, Model 3 with four first-order factors that are correlated with each other, and Model 4 with four first-order factors and one second-order factor. The GFI indices of the four alternative models are summarised in Table 4. By comparing these four models, Table 4 shows that Model 3 outperforms the others and has the best model fit in terms of RMSEA of 0.078, NFI of 0.97, GFI index of 0.89, and CFI of 0.98.

The t value for each item in these four dimensions of Model 3 is greater than 1.96, and the factor loading values are from 0.58 to 0.88 within the recommended values from 0.5 to 0.95 (Bagozzi & Yi, 1988). AVE values of these four dimensions are greater than 0.5 suggested by Fornell and Larcker (1981) except for friendly anticipation of needs, with slightly lower than 0.5. In addition, CR values range from 0.72 to 0.91, and all values exceed 0.6, satisfying the general reliability requirement for research instruments (Fornell & Larcker, 1981). Therefore, the convergent validity of Model 3 is acceptable.

We assessed the discriminant validity among the dimensions by calculating the squared inter-dimension correlations for each pair of dimensions and comparing the results to the AVE estimate for each dimension. Table 5 shows that all AVE estimates for each dimension are greater than the squared inter-dimension correlations, which support discriminant validity. Note that the AVE for each dimension is the value in the diagonal of the correlation matrix in Table 5. Based on the above CFA results, our scale has cross validity. The resulting four dimensions and 18 items of our Chinese retail service quality scale are shown in the appendix.

Table 3. Output of performing exploratory factor analysis by principal component analysis.

Kaiser–Meyer–Olkin measure of sampling adequacy		.931
Bartlett’s test of sphericity	Approx. chi-square	3097.812
	df	153
	Sig.	.000

Table 4. GFI indices of four alternative models.

Model	χ^2	RMSEA	NFI	GFI	CFI
1. One first-order factor	530.85	.092	.96	.86	.97
2. Four uncorrelated first-order factors	1478.4	.160	.90	.70	.91
3. Four correlated first-order factors	400.2	.078	.97	.89	.98
4. Four first-order factors and one second-order factor	477.8	.086	.96	.88	.97

Table 5. Squared inter-dimension correlations and AVE.

Dimensions	1	2	3	4
1. Friendly anticipation of needs	.44			
2. Efficient shopping time	.27	.76		
3. Flexible and responsive procedures	.31	.23	.57	
4. Access to professional staff	.41	.26	.51	.62

5. Conclusions

This study sets out to reveal the dimensionality of the hypermarket service quality construct with Chinese cultural settings. Our proposed service quality scale consisting of four dimensions, namely friendly anticipation of needs, efficient shopping time, flexible and responsive procedures, and access to professional staff, has 18 items. Our measure naturally reflects distinct aspects of the Chinese contexts. Customers in this context are concerned with frugality as they seek to avoid wasting time and search for value in their shopping experience (Ackerman & Tellis, 2001). Moreover, interpersonal elements of interaction in service are emphasised by Chinese customers (Furrer et al., 2000; Tse & Ho, 2009). Dabholkar et al. (1996) pointed out that service quality is a hierarchical construct, i.e. a second- or third-order model. However, our scale is a first-order construct, which fits the psychology of the Chinese customers.

The Western mind has a preference for abstraction such that it is natural that objects are organised into categories described by properties and governed by abstract rules. On the other hand, Chinese people group objects on the basis of relationship and similarity. The sense of abstraction lacks significance where individuals seek to understand how elements relate to each other (Nisbett, Peng, Choi, & Norenzayan, 2001; Peng, Spencer-Rodgers, & Nian, 2006). A first-order model of Chinese hypermarket retail service quality seems close to the preference Chinese customers have for the concrete and immediate reactions to a stimulus (Norenzayan & Nisbett, 2000). Our proposed measurement scale is suitable for hypermarket managers who want to evaluate the service quality they offer to customers. This would either offer insight to current quality levels or could serve as a diagnostic instrument that allows periodic review of customer perceived service performance.

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Appendix. Chinese retail service quality items

Friendly anticipation of needs

1. The service employees' attitude is Chinchieh
2. The service employees always smile
3. Service employees active solve customers' problems
4. The customer service centre provides comprehensive services
5. Employees politely and responsibly reply customers' suggestions and comments

Efficient shopping time

6. The retailing store has a clear sign to show where the product is
7. The retailing store has a clear sign to show information of products

Flexible and responsive procedures

8. They always replenish quickly
9. Their policy and procedures are human-oriented
10. The environment inside and near the store is clean
11. The store has a clear sign

Access to professional staff

12. Service employees do not ignore the complaints of the customers
 13. Service employees always provide service to the customers
 14. They have an adequate number of service employees
 15. Service employees do not refuse to response customers' requests
 16. The information on the web and DM are updated in a timely basis
 17. Service employees can quickly respond to customers' comments
 18. The service employees (and the store) would not over hard sell
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