

# Service quality and store design in retail competitiveness

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## Abstract

**Purpose** – This paper aims to analyse the importance of service quality and store design as critical variables to promote differentiation and make consumers feel satisfied and committed to a retail brand. Retailers usually undervalue the store design as an element of the strategic mix. However, it may be one of the critical elements to increase retailers' competitive advantages.

**Design/methodology/approach** – This exploratory study was based on 349 valid responses to a questionnaire online through a snowball sampling approach analysed with structural equation modelling.

**Findings** – The results confirmed that customers' service quality positively impacts their satisfaction and commitment to the retail brands. However, store design moderates the relationship between customer satisfaction and commitment. The consumers with a higher appreciation for store design presented a lower impact of satisfaction on their commitment to the retail brand. This result shows that a significant part of their satisfaction includes store design appreciation.

**Research limitations/implications** – This exploratory study was restricted to the Portuguese market, and the sample resulted from a convenience snowball approach.

**Practical implications** – The retailers should consider store design as an essential variable in their marketing plans to have satisfied and committed customers and be more competitive.

**Originality/value** – Research on consumers' behaviour in the retail sector, including the assessment of store design, presents a great potential within the framework of consumer–brand relationship theory, but it is still under-researched. The new model presented highlights the role of store design as a moderator variable.

**Keywords** Service quality, Retail, Stores and supermarkets, Design, Consumer satisfaction, Commitment

**Paper type** Research paper

## 1. Introduction

The Portuguese retail sector is a very competitive market, highly concentrated and dominated by a small number of players. This situation implies that the retailers need to constantly surprise and exceed the individuals' expectations through opening new stores or remodelling the already available ones. Retailers having a lower market share need to reinvent themselves; and adopt new strategies for services and layouts, amongst other variables, which will increase their competitiveness and differentiation (Doyle and Broadbridge, 1999). Thus, the initial research question was how satisfied and committed the consumers could be concerning the retail's service quality and store design? This study

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aimed to analyse the importance of those variables to promote differentiation and make consumers feel satisfied and committed to Portuguese retail supermarkets and hypermarkets brands. It explores how service quality impacts consumers' satisfaction and commitment, being store design improvements a possible moderator variable of this relationship. An exploratory study was performed in October and November 2021 to accomplish these objectives, based on 349 responses to a questionnaire online (Qualtrics Form) through a snowball sampling approach using email, being data analysed through structural equation modelling. Next, the theoretical framework of the model and hypothesis is presented, followed by the methods used in this research. Based on data obtained in the survey, one shows the results, discussion and conclusion with practical implications.

## 2. Theoretical framework

The retail market is a mature and competitive sector, and, consequently, traditional marketing tends to decrease in effectiveness (McKenna, 1991). In the past, retailers used to distribute products passively; nowadays, they reinvent themselves, trying to establish competitive advantages and become more proactive. The focus is on developing positive images about their brands and influencing their consumers' purchase behaviours in a context where individuals have higher expectations and less propensity to become loyal (e.g. Aktas and Meng, 2017; Hanaysha, 2018; Shamsheer, 2015). With intensive competition, customers' retention and commitment became one primary concern for retailers (e.g. Lourenço *et al.*, 2015).

Main retailing activities consist in deciding what product assortment should be available at the stores; which selling strategies to adopt; how to make a compelling offer, avoiding out-of-stocks situations or poor on-shelf availability; and betting on stores' layout capable of inducing consumer satisfaction (Aktas and Meng, 2017; Daultani *et al.*, 2021; Grosso *et al.*, 2018; Hanaysha, 2018; Thomas *et al.*, 2020). The focus only on products assortment, stock management and price promotions are not enough to surprise consumers. By providing quality service and investing in (re)designing strategies and store remodelling, retailers may be capable of achieving a more coherent and meaningful offer to the consumers, increasing brand awareness, differentiation and creating positive associations in their minds (Das *et al.*, 2019; Doyle and Broadbridge, 1999; Francioni *et al.*, 2018; Hanaysha, 2018; Kumar and Kim, 2014; Ogiemwonyi *et al.*, 2020; Sousa *et al.*, 2020; Thomas *et al.*, 2020; Turley and Chebat, 2002; Underhill, 2009).

Retailers in Portugal are remodelling stores and transforming them into entertainment and cosy places (Silva, 2018). By doing so, they are keeping and even increasing their market share. Lidl is an example of a brand that decided to bet on a precise repositioning and that invested in renovating all their stores' design (Costa, 2018); they could become, in the last two years, the third leading player – they used to be the fifth (Gonçalves, 2020). Thus, service quality and store design in retailing could be critical variables to bear in mind to induce consumer satisfaction and a relationship in time.

The measure of service quality is one of the most researched concepts in the marketing literature, since it allows companies to constantly evaluate their performance from consumers' point of view (Ogiemwonyi *et al.*, 2020). Experts agree that perceived quality is the outcome of customer satisfaction. The SERVQUAL model developed by Parasuraman *et al.* (1988) is the most used for measuring service quality. However, Cronin and Taylor (1992) attempted to measure service quality by considering only the performance – SERVPERF. These authors believed that their measure of service performance produced better results and less bias than the SERVQUAL. Moisescu and Giga (2013) showed that the SERVPERF model is more suitable and appropriate for measuring the effect of service quality on satisfaction and recommend intention. Therefore, our first hypothesis is as follows:

H1. The SERVPERF scale can be used to measure consumers' perception of service quality in retail stores.

Some authors believe that the higher the brand's capacity to surprise consumers and exceed expectations (products, services and store layout), the higher the positive perceptions they get and the greater the brand's image and the consumers' degree of satisfaction (Aktas and Meng, 2017; Daultani *et al.*, 2021; Doyle and Broadbridge, 1999; Frasquet-Deltoro *et al.*, 2017; Fullerton, 2005; Underhill, 2009). When choosing for a retailer, consumers care about perceived service quality and satisfying experiences (Aktas and Meng, 2017; Das *et al.*, 2019; Daultani *et al.*, 2021; Doyle and Broadbridge, 1999; Fullerton, 2005; Hickman *et al.*, 2019; Souiden *et al.*, 2019). Consequently, our second hypothesis is as follows:

H2. The consumers' satisfaction with a retail brand is positively associated with their perceived service quality.

A retailer's success depends upon its capacity to recognize which factors are significant to consumers, making them feel satisfied, wanting to come back and pay attention to the brand's offers (Hapsari *et al.*, 2017; So *et al.*, 2014). Consumer satisfaction is one prime factor inducing a long-term consumer relationship with a brand, therefore positively influencing a company's financial performance (Frasquet-Deltoro *et al.*, 2017; Nyadzayo and Khajehzadeh, 2016). The relationship marketing literature agrees that satisfied clients develop the intention to stay with a brand and that consumer commitment is a central construct that leads to an ongoing relationship (Das *et al.*, 2019; Fullerton, 2005; Hapsari *et al.*, 2017; Shaham *et al.*, 2018; Simanjuntak *et al.*, 2020; So *et al.*, 2014; Vinita *et al.*, 2015). Commitment has two components: affective and continuance (Fullerton, 2005; Harrison-Walker, 2001). As a result of a large set of satisfactory experiences, consumers become fond of the brand, developing a positive attitude (Daultani *et al.*, 2021; Fullerton, 2005; Khan *et al.*, 2020; Kozinets *et al.*, 2002). Continuance commitment consists, essentially, in the scarcity of alternatives and switching costs – difficulty to end the relationship with a brand when few and/or better options are perceived (Fullerton, 2005; Harrison-Walker, 2001). Affective or continuance commitment leads to consumer retention, because of consumer satisfaction (Bloemer and Kasper, 1995; Hapsari *et al.*, 2017; Muncy, 1996; Nyadzayo and Khajehzadeh, 2016; Shaham *et al.*, 2018; Vinita *et al.*, 2015). According to these findings, the third hypothesis is proposed:

H3. The consumers' commitment to the retail brand is positively associated with their satisfaction with their buying experiences at the stores.

Appealing physical environments have caught the attention of several scholars and business managers since it became evident that store atmosphere and design impact consumer behaviours and perceptions (e.g. Ali *et al.*, 2013; Blut *et al.*, 2018; Calvo-Porrall and Lévy-Mangin, 2021; Chebat and Minchon, 2003; Daultani *et al.*, 2021; Francioni *et al.*, 2018; Grewal and Rogeeveen, 2020; Hanaysha, 2018; Konuk, 2018; Kumar and Kim, 2014; Oh *et al.*, 2008; Simanjuntak *et al.*, 2020; Turley and Chebat, 2002; Webber *et al.*, 2018). There seems to exist a relationship between store layout/design and satisfaction that leads to customers' commitment and/or desire to keep a long-term relationship with a brand (Bavasard *et al.*, 2020; Calvo-Porrall and Lévy-Mangin, 2021; Daultani *et al.*, 2021; Doyle and Broadbridge, 1999; Grosso *et al.*, 2018; Hanaysha, 2018; Simanjuntak *et al.*, 2020; Sousa *et al.*, 2020; Underhill, 2009).

Commitment is generally accepted as a construct associated with consumers' intention to keep a relationship in time with a brand and to develop a re-purchase intention (Chaudhuri and Holbrock, 2001; Das *et al.*, 2019; Fournier, 1995; Fullerton, 2005; Hapsari *et al.*, 2017; Harris and Goode, 2004; Nyadzayo and Khajehzadeh, 2016; Vinita *et al.*, 2015). Some researchers consider re-purchase behaviour as the revisit intention, contributing to positive brands'

image and encouraging for more sales and for the individuals' predisposition to explore products in the store (e.g. Graciola *et al.*, 2018; Simanjuntak *et al.*, 2020); therefore, the fourth hypothesis is proposed:

*H4.* The consumers' perception of the store design moderates the relationship between customers' satisfaction and customers' commitment.

A structural equation model could study all these hypotheses, which is the better approach to the predicted relationships between latent and manifest variables (Figure 1).

### 3. Methods

The research followed a cross-sectional design with a quantitative approach where the constructs were measured using instruments already validated in other studies. As such, the questionnaire was based on the previous literature and was tested with ten individuals. The final questionnaire reflects some minor corrections proposed by the participants of the pretest.

#### 3.1 Procedures

An online survey was carried out on a sample of people from the authors' social networks, both personal and work, who were asked to pass the survey on to other families in their relationships. The responses obtained in the study, for one month, were screened on the basis that the participants were regular shoppers at hypermarkets and supermarkets. This convenience snowball sample had been suggested by Sarstedt and Mooi (2014), namely in the context of personal data protection laws, which avoid the researchers having access to any list of stores' consumers.

#### 3.2 Participants

Table 1 shows the main characteristics of the respondents. There were more female participants (63.3%), and most of the respondents had high education (81.7%). Multiples of the national minimum wage split the individual income.

On Table 2, it is the distribution of the respondents amongst the retail brands they use when they are shopping.

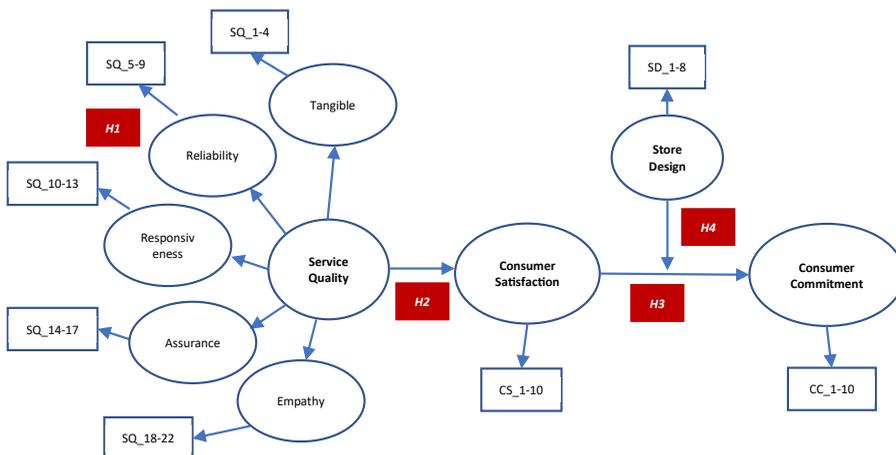


Figure 1. The initial research model

Characteristics	N = 349	%
<i>Gender</i>		
Male	128	36.7
Female	221	63.3
<i>Education</i>		
Basic school (frequency)	2	0.6
Basic school (ninth year)	12	3.4
Secondary school (12th year)	43	12.3
Professional school	7	2.0
High education	285	81.7
<i>Average monthly income</i>		
Less than 635 €	50	14.3
635–1,269 €	121	34.7
1,270–1,905 €	86	24.6
More than 1,905 €	92	26.4
<i>Main professional activity</i>		
Businessperson	53	15.2
Employee	192	55.0
Student	38	10.9
Worker-student	20	5.7
Unemployed	14	4.0
Retired	17	4.9
Other	15	4.3
<i>Age (years)</i>		
Min-max	18–80	
Mean (standard deviation)	43.61(13.03)	

**Table 1.**  
Main characteristics  
of respondents

Retail brands	n	%
Continente	143	41.0
Pingo Doce	82	23.5
LIDL	35	10.0
Mini Preço	4	1.1
Mercadona	43	12.3
Auchan	21	6.0
Intermarché	4	1.1
Other	17	4.9
<i>Total</i>	<i>349</i>	<i>100</i>

**Table 2.**  
Retail brands used by  
the respondents

### 3.3 Instruments

To measure service quality, the SERVEPERF model was used (Cronin and Taylor, 1992) with 22 items answered by a Likert-7 points scale (1 = Totally disagree to 7 = Totally agree). To measure store design, it was adapted the operationalization done by Loureiro and Roschk (2014), also using a Likert-7 points scale. To measure consumer satisfaction, it was decided to use the scale of Spreng *et al.* (1996), which considers that satisfaction is the result of the consumers' evaluation of the use and/or previous experience with the brand. It was used a seven points' Likert-type scale, varying from 1 = Very dissatisfied to 7 = Very satisfied. The measure of commitment to the retail brand, as the person's intention to keep a relationship and considering it

as an affective and/or emotional process, was based on [Beatty and Kahle's \(1988\)](#), [Bloemer and Kasper's \(1995\)](#) and [Muncy's \(1996\)](#) studies. Thus, some questions were developed trying to represent the main characteristics of a possible relationship between a consumer and a brand (e.g. "I consider myself loyal to X brand"; and "I intend to go on buying X brand's products"). A seven point's Likert scale was used, varying from 1 = Totally disagree to 7 = Totally agree.

### 3.4 Questionnaire

The questionnaire had 55 questions, divided into five sections: service quality, store design, consumers' satisfaction, consumers' commitment and socio-demographic characterization ([Table 3](#)).

### 3.5 Data analysis

IBM-SPSS 26 and AMOS 26 software were used to analyse the data. To study the dimensionality, reliability and validity of scales, the classical test theory approach was used, as it is the most used in the social and behavioural sciences ([Malhotra et al., 2012](#)).

## 4. Results and discussion

### 4.1 Analysis of variable distributions

The online survey required participants to answer all the questions, so there were no missing values in the validated responses. There were some outliers in all the variables, which, however, represent valid opinions from more demanding customers. After testing to improve the model's fit, only two observations were eliminated that significantly impacted multi-variate kurtosis. The final sample of 349 cases allows the confidence interval of the estimates to be greater than 95% and the test power more significant than 80% ([MacCallum et al., 1996](#)).

The analysis of uni-variate normality led to the conclusion that it does not exist in some of the variables. Furthermore, multi-variate kurtosis, which is measured in AMOS by the Mardia coefficient, has a value ( $K = 529.99$ ) and a critical ratio (97.55) very high, showing that there is no multi-variate normality. As the sample is not large enough to use estimators without the assumption of multi-variate normality, the Bollen–Stine bootstrap and maximum likelihood bootstrap with 500 samples were chosen to evaluate the levels of bias in chi-square and standard errors of the estimates, as suggested by many experts (e.g. [Byrne, 2010](#)).

### 4.2 Analysis of the latent variables' dimensionality

In [Table 4](#), one can see a resume of the evaluation of the capacity to perform factorial analysis with the manifest variables, their level of multi-collinearity and dimensionality analysis.

Sections	The number of questions	Sources
1. Service quality	1 to 22	<a href="#">Parasuraman et al. (1988)</a> and <a href="#">Cronin and Taylor (1992)</a>
2. Store design	23 to 30	<a href="#">Donovan and Rossiter (1982)</a> , <a href="#">Hausman and Siekpe (2009)</a> , <a href="#">Koo and Ju (2010)</a> , <a href="#">Loureiro and Roschk (2014)</a> and <a href="#">Turley and Milliman (2000)</a>
3. Consumers' satisfaction	31 to 40	<a href="#">Spreng et al. (1996)</a>
4. Consumers' commitment	41 to 50	<a href="#">Beatty and Kahle (1988)</a> , <a href="#">Bloemer and Kasper (1995)</a> and <a href="#">Muncy (1996)</a>
5. Socio-demographic characterization	51 to 55	

**Table 3.**  
Constructs versus  
questions

The predicted dimensions of the Servperf scale were tangible (four items); reliability (five items); responsiveness (four items); assurance (four items); and empathy (five items). To verify whether the data would be adjusted to carry out factor analysis, the Kaiser–Meyer–Olkin (KMO) statistic was used, which presents values between zero and one. According to this criterion, KMO values above 0.9 are considered optimal, values in the 0.8 range are very good, values in the 0.7 range are good, values in the 0.6 range are satisfactory, values in the 0.5 range are mediocre and values less than 0.5 are not accepted (Norusis, 1993). Also, to check whether the variables are suitable for factor analysis, the Bartlett sphericity test is used, which should present a significant chi-squared statistic ( $p < 0.05$ ).

Checking the determinant of the R-matrix (of correlations) can indicate whether there is excessive multi-collinearity, which will happen if its value is less than 0.00001 (Nunnally and Bernstein, 1994).

The option “Reproduced” summarizes the differences between the correlation matrix based on the model and the correlation matrix based on the real data. Ideally, it is wanted a few values to be greater than 0.05. If more than 50% of these differences are greater than 0.05, the model might not significantly fit the data.

Following Hair *et al.* (1998), it was performed a confirmatory factor analysis (CFA) to determine whether the dimensions predicted in the original scale were maintained. The principal axis factoring method was used with varimax rotation, allowing the natural correlation between the dimensions of a latent variable but trying to distinguish them in an orthogonal way.

As for the number of extracted factors, it was used the Kaiser-Guttman criterion, which implies choosing only those that have an eigenvalue greater than 1, that is, in which the amount of variance accounted for by it is greater than the standardized mean variance of all items.

It was verified that in the Servperf scale, there would only be three factors according to the Kaiser-Guttman criterion, explaining 60.46% of the total variance. That is, the five dimensions of the original scale are not confirmed. By analysing the weights of the factors in each item, it was decided to eliminate those that had similar ones for more than one factor (Items 3, 4, 12, 13, 17 and 20). This elimination further clarified the three factors, explaining 64.91% of the total variance. The three dimensions of the service quality measurement scale perceived by customers, after analysing the items, would be the tangible dimension with two items, the reliability dimension with six items and a dimension that encompassed empathy, responsiveness and assurance of employees with eight items. All factor weights are greater than 0.58. It is natural, looking at the focus of the issues, that this dimensional arrangement has occurred. It is concluded that it is more difficult for Portuguese customers to separate concepts such as responsiveness, assurance and empathy of employees, which are seen as a whole.

Analysing the customer satisfaction scale, it was verified that only one factor explains 74.39% of the total variance.

In the customer commitment scale, it the items CC02, CC06 and CC10 were eliminated because they presented factor weights lower than 0.5. It was verified that only one factor explains 71.85% of the total variance.

Scales	KMO <sup>1</sup>	BST <sup>2</sup>	Determinant	Reproduced	Conclusion
Servperf	0.927	3,478.22*	0.000041	12(10%)	Optimal
Customer satisfaction	0.947	3,801.44*	0.0000168	6(13%)	Optimal
Customer commitment	0.924	1,867.74*	0.005	4(19%)	Optimal
Store design	0.900	1,830.06*	0.005	10(47%)	Optimal

**Note(s):** <sup>1</sup>Kaiser–Meyer–Olkin statistic; <sup>2</sup>Bartlett sphericity test; and \* $p < 0.001$

**Table 4.**  
Variables' analysis

In the store design scale, the item SD06 was eliminated for having several residuals above 0.05, impairing the model's adjustment to the obtained data. This item is weak in the evaluation of the store's design. It was verified that only one factor explains 68.57% of the total variance.

Afterwards, to guarantee the convergent and discriminant validity of the scales used in the model, a CFA was performed with all items, using principal component analysis and varimax rotation. Items CC3, CC5, SD7 and SD8, were eliminated because they presented the main factor weights from other factors. It was also found that it is not possible to discriminate between the Tangible and the Store Design scales. This result makes perfect sense, considering the issues involved that are similar. Thus, the Tangible Scale was eliminated, which only had two items with correlations below 0.5 concerning the other items on the global service quality scale.

The final factor loadings are shown on [Table 5](#), being all of them higher than 0.5.

#### 4.3 Reliability and validity analysis

The assessment of the reliability of the scales was carried out using several techniques.

The interrelationship between the items of the scales was analysed, evaluating the corrected item-total correlations ( $> 0.3$ ), the mean of the inter-item correlations ( $> 0.5$ ) and the Cronbach's alpha ( $> 0.7$ ) (Nunnally, 1978). The Composite Reliability (CR) of latent variables should be greater than 0.7 (Hair *et al.*, 1998). The Mean-Variance Extracted (MVE) must be greater than 0.5 (Fornell and Larcker, 1981), showing the representativeness of the latent variable. The summary [Table 6](#) shows that they all present, after purification, the values considered adequate to continue this study.

There is convergent (MVE  $> 0.5$  and CR  $> 0.7$ ) and discriminant (MVE  $> R^2$  for each pair of latent variables) validity. There is an exception with the Reliability scale concerning the Responsiveness scale, but this is not a problem because they are two dimensions of the service quality scale, so they should have more in common. Since the variables were measured simultaneously, the criterion-related validity was evaluated by concurrent validity using the final model.

Two models were compared with AMOS to assess whether there can be a second-order construct – service quality: one with two first-order factors and the other with the second-order factor (Brown, 2006), verifying that there was no difference between the indicators of goodness of fitness. So, both models represent the same reality; as such, the latent variable of second order can be used in the model.

The final model was analysed ([Figure 2](#)), adjusting it through some correlations between the items' errors until it reached a Bollen–Stine bootstrap with a  $p$ -value higher than 0.05 ( $p = 0.052$ ), which means that the final adjusted model fits well the data. We have also obtained a ratio  $\chi^2/df < 2$ , which is considered a good fit (Arbuckle, 2008). The goodness-of-fit indicators ([Table 7](#)) showed that the model has a good fit to the data of this sample with 349 observations. All regression weights or loadings between the substantive variables are all statistically significant ( $p < 0.001$ ). However, a maximum likelihood (ML)-bootstrap of 500 samples to correct the estimated standard errors was run. When these errors were corrected by this method (Byrne, 2010), all estimates continued to be statistically significant ( $p < 0.01$ ).

#### 4.4 Common method variance

The marker variable technique evaluated common method variance (CMV), an easy-to-use and robust partial correlation technique (Lindell and Whitney, 2001). According to these authors, researchers should use the second smallest positive correlation amongst the manifest variables as a more conservative estimate of the correlation effect caused by the CMV ( $r = 0.277$ ;  $p < 0.001$ ). Correcting the model's standardized regression weights (SRW),

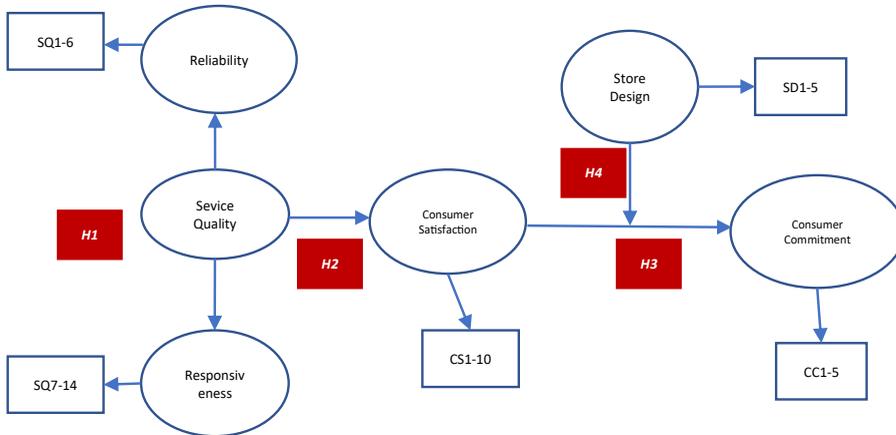
**Table 5.**  
Factor loadings in  
the final scales

Scales	Items									
	SQR5	SQR6	SQR7	SQR8	SQR9	SQR10	SQF19	SQF21	SQF22	SI0
Reliability	0.728	0.536	0.562	0.770	0.609	0.703				
Responsiveness	SQF11	SQF14	SQF15	SQF16	SQF18	SQF19		SQF21	SQF22	
Customer commitment	0.769	0.674	0.741	0.710	0.659	0.795		0.674	0.765	
Customer satisfaction	CC1	CC4	CC7	CC8	CC9	CC9				
Store design	0.563	0.646	0.632	0.772	0.667					
	S01	S02	S03	S04	S05	S06		S07	S08	S09
	0.703	0.782	0.689	0.787	0.803	0.822		0.841	0.621	0.776
	SD1	SD2	SD3	SD4	SD5					
	0.775	0.838	0.808	0.638	0.665					0.800

Scales	$\alpha$ Cronbach <sup>a</sup>	Minimum item-total correlations <sup>a</sup>	Average of inter-item correlations <sup>a</sup>	Composite reliability <sup>b</sup>	Mean-variance extracted <sup>b</sup>	$R^{2b}$
Reliability	0.891	0.636	0.576	0.891	0.578	Rel.-Resp.(0.584)
Responsiveness	0.924	0.689	0.604	0.925	0.607	Rel.-SD(0.391)
Quality	0.938	0.602	0.521	0.953	0.595	Rel.-CS(0.487)
Store design	0.920	0.722	0.696	0.921	0.702	Rel.-CC(0.504)
Customer satisfaction	0.962	0.654	0.719	0.963	0.727	Resp.-SD(0.365)
Customer commitment	0.918	0.767	0.691	0.918	0.690	Resp.-CS(0.379)
						SD-CC(0.398)
						SD-CC(0.510)
						CS-CC(0.663)

**Table 6.** Reliability and validity of the scales

**Note(s):** <sup>a</sup>Using SPSS. <sup>b</sup>Using AMOS.



**Figure 2.** The final research model

Indicators	Values	Criteria	Indicators	Values	Criteria
<i>CMIN</i>	596.978	Smaller	<i>NFI</i>	0.936	> 0.9
<i>GL</i>	346	-	<i>RFI</i>	0.925	> 0.9
<i>p-value</i>	0.000	> 0.05	<i>TLI</i>	0.967	> 0.9
<i>CMIN/GL</i>	1.725	< 2 (5)	<i>CFI</i>	0.972	> 0.9
<i>RMR</i>	0.067	Smaller	<i>PNFI</i>	0.798	> 0.6 (0.8)
<i>SRMR</i>	0.047	Smaller	<i>PCFI</i>	0.828	> 0.6 (0.8)
<i>GFI</i>	0.897	> 0.9	<i>RMSEA</i>	0.046	< 0.05
<i>AGFI</i>	0.870	> 0.9	<i>PCLOSE</i>	0.876	> 0.05
<i>PGFI</i>	0.713	> 0.6 (0.8)			

**Table 7.** Goodness of fitness indicators for the final model

we verified that the differences between them before and after the adjustment have the maximum value of 0.136. In the case of the SRW amongst the latent variables, the higher difference is 0.0766. Nevertheless, all the loadings in the model are statistically significant, even with that correction ( $p < 0.001$ ). Thus, it was concluded that CMV does not have a significant impact on the results of the study.

4.5 Hypothesis analysis

This research was conducted to analyse the relationships between service quality, customer satisfaction, store design and customer commitment in the context of retail stores in Portugal.

The Servperf scale needed to be reduced to two dimensions with 14 reliable and valid items to be adjusted to the Portuguese population. Thus, the **first hypothesis** was partially validated because the revised scale could measure service quality in the retail sector.

The **second hypothesis** (the consumers' satisfaction with a retail brand is positively associated with their perceived service quality) was validated as expected. The regression weight is 0.800 (or 0.723 after CMV correction), being statistically significant ( $p < 0.01$ , after bootstrap analysis). This result supports previous studies (e.g. [Frasquet-Deltoro et al., 2017](#); [Fullerton, 2005](#)).

The **third hypothesis** (the consumers' commitment to the retail brand is positively associated with their satisfaction with their buying experiences at the stores) was also validated as expected. The regression weight is 0.824 (or 0.757 after CMV correction) is statistically significant ( $p < 0.01$ , after bootstrap analysis). There is also an indirect effect of service quality on consumer commitment (0.659) that is statistically significant after bootstrap analysis ( $p < 0.01$ ). Results support previous research (e.g. [Das et al., 2019](#); [Fullerton, 2005](#); [Hapsari et al., 2017](#); [Nyadzayo and Khajehzadeh, 2016](#)).

Through factor analysis, the standardized scores for each respondent in the store design variable were calculated. This variable was dichotomized based on its mean (= 0), dividing the sample into a group that significantly appreciates store design and another that does not. The analysis carried out with AMOS shows that the Store design variable may moderate the relationship between quality–satisfaction–commitment ([Table 8](#)). However, when the relationship between quality and satisfaction was analysed in particular, it was verified that this effect is not there. In fact, the moderating effect of store design appeared between satisfaction and commitment, validating the **fourth hypothesis** (the consumers' perception of the store design moderates the relationship between customers' satisfaction and customers' commitment).

The impact difference between clients who consider the retail store highly attractive and those who feel less attractive is not statistically significant ( $p = 0.253$ ). So, the moderating effect exists in the impact of satisfaction on commitment ( $p < 0.01$ ). The impact loadings of the two groups are in the group with less attraction = 0.812, and the group with more attraction = 0.676. This result means that for the group with less attraction, a unitary change in the standard deviation of satisfaction implies a change of 0.812 in commitment. The other group shows less impact of satisfaction on commitment because they probably highlight the importance of store design in their retail brand appreciation (e.g. [Hanaysha, 2018](#); [Newman and Patel, 2004](#)).

5. Conclusion

Based on the results of this study, service quality has a significant positive effect on customer satisfaction, essentially based on reliability and responsiveness, as employees' ability at the

**Table 8.**  
Model comparisons for  
accessing moderating  
effects of store design

Model	Chi-square	Degrees of freedom	p-value
Unconstrained	1,104.237	692	
Constrained	1,147.162	720	
Difference	42.925	28	< 0.05
Quality–satisfaction constrained	1,105.544	693	
Difference	1.307	1	= 0.253
Satisfaction–commitment constrained	1,112.293	693	
Difference	8.056	1	< 0.01

point of sale to provide attentive service and reliable information. The analysis also showed that store design moderates the relationship between satisfaction and commitment. It is concluded that Portuguese consumers appreciate pleasant stores and their design and layout, becoming satisfied and more committed to the retail brand.

This study reinforces the importance of employees' quality and store design in the retail sector competition. Players committed to remodelling their stores, choosing a welcoming layout and developing positive stimuli (light, colours, fine furniture, sound equipment, general services and self-service areas) are increasing their market share. Retailers wanting to maintain or increase their market share need to invest in offering a quality service. Particular attention should be paid to responsiveness and reliability; they also need to bet in-store design, making the point-of-sales more attractive and cosier.

This study has limitations, like being restricted to the Portuguese market and the sample resulting from a convenience snowball approach. Further studies with other samples of the population and/or in international markets will be necessary to understand better the impact of store design on satisfaction and brand commitment in the retail sector.

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