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Customer satisfaction and loyalty in the eyes of new and repeat customers

Customer
satisfaction and
loyalty

Evidence from the transport sector

623

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Abstract

Purpose – The purpose of this paper is to attempt to explore the relative importance of the physical and interactive elements of service on overall satisfaction, particularly when these elements are moderated by the point-of-view of repeat and new customers. Evidence is drawn from the transport sector industry.

Design/methodology/approach – The data for this study come from 388 ferry passengers. Regression analysis was used to test the influence of each parameter and SEM employed to assess the moderating effects of repeat patronage on satisfaction.

Findings – The results suggest that the physical elements of the service are of greater importance in determining customer evaluations on overall satisfaction than interactive features of service. The results also suggest that these effects are not just direct but also moderated by the repeat use of the service. Finally, both elements are very good predictors of overall satisfaction.

Research limitations/implications – As results are obtained from only one industry, generalisations should be drawn with care.

Practical implications – The presumption of managers when looking at satisfaction as the primary, even sole, gauge of customer loyalty appears to be erroneous. The consequence is potential misallocations of resources due to myopic focus on customers' satisfaction increase. The findings suggest that attention should be given to increasing the loyalty of passengers/customers.

Originality/value – This study suggests a moderating role for repeat and new customers in the satisfaction-loyalty relationship and implies that to maximise investments in service improvements based on a focus on increasing physical satisfaction rather than seeking to develop an interactive "delight" to the customer.

Keywords Customer satisfaction, Customer loyalty, Passenger transport, Buyer-seller relationships, Greece

Paper type Research paper

Introduction

Services are by their very nature intangible and thus their assessment and subsequent evaluation cannot be achieved prior to their consumption; this justifies their classification as "experience" products (Nelson, 1974). This results in high uncertainty in customers' minds, forcing them to concentrate on certain quality signals or service attributes to decrease information asymmetries. Relationship marketing has thus emerged as an exciting area of marketing that focuses on building long-term relationships with customers and other parties. In the relationship marketing literature



there is a general agreement that the quality and the satisfaction of the relationship between buyer and seller are important determinants of the permanence and intensity of the relationship and the success of the firm (Berry, 1995; Goff *et al.*, 1997). Although academics and practitioners recognise the importance of the relationship between the involved parties, there is little empirical evidence regarding the quality and the satisfaction of the relationship. This relationship quality may become a prerequisite to satisfaction (Caceres and Paparoidamis, 2007). However, in long-term relationships perceived satisfaction and perceived quality tend to merge into an overall evaluation of relationship satisfaction (Leverin and Liljander, 2006).

The multidimensionality of relationship satisfaction is grounded in the literature (Crosby and Stevens, 1987; Bowen and Schneider, 1988; Bejou *et al.*, 1998). Oliver (1993) in explaining satisfaction with the offering, have, like others, introduced the intangible element with its more materialised part of the service product into the equation. The influence of these tangibles and intangibles upon service quality is a widely debated issue in the marketing literature despite the apparent lack of consensus on the relative importance of every dimension. Few studies (Brady and Cronin, 2001; Kang and James, 2004; Reimer and Kuehn, 2005; Kang, 2006) consider the effect of the servicescape (tangibles) and the intangibles in its impact on service quality. Some authors advocate for the larger role that process quality factors play in perceptions of quality compared to the tangible ones (Cronin and Taylor, 1992; Parasuraman *et al.*, 1991; Dabholkar *et al.*, 1996) while others (e.g. Oberoi and Hales, 1990; Lewis, 1991; Turley and Fugate, 1992; Santos, 2002) support exactly the opposite. There is little if any evidence in the literature linking or relating these two attributes directly to satisfaction.

Moreover, the role of purchase behavior as an antecedent of satisfaction from the service and its physical and interactive elements have received even less attention, although numerous studies (Anderson *et al.*, 1994; Cronin and Taylor, 1992; Zeithaml *et al.*, 1996) assumed that previous or past experiences is a primary determinant of customer satisfaction. A deeper understanding of the interactions among customer satisfaction, physical and interactive elements and customer repeat patronage should go a long way in improving management effectiveness in the service sector.

The purpose of this study is therefore to assess the influence of physical and interactive elements of service on overall satisfaction, particularly when these elements are moderated by the point of view of new and repeat customers. The evidence is drawn from the transport sector, specifically the coastal shipping one. To reach this objective, this study will begin with a synthesis of the literature. It will then explain the method employed to assess the purpose of the study. The paper will conclude with the presentation and discussion of the results of the study.

Conceptual background

Relationship satisfaction

Due to the specific character of services, the development of customer relationships is important in a range of service markets. Factors other than the obvious interactive elements of the offering should be included in the relationship equation. In this way, relationships may be managed and developed in order to achieve higher customer satisfaction. Customer satisfaction is recognised as a key intermediary objective in service operations representing an affective self-evaluation based on price and quality trade offs (Roest and Pieters, 1997) Rust and Oliver (1994) were the first to define

satisfaction as “the customer’s fulfillment response” which is both an evaluation and an emotion-based response to a service. Crosby and Stevens (1987) referred to relationship satisfaction as a multi-dimensional construct, which is a prerequisite for relationship quality with three distinct levels:

- (1) satisfactory interaction with the personnel;
- (2) satisfaction with the core service; and
- (3) satisfaction with the organisation.

All levels contribute to overall satisfaction with the relationship between buyers and sellers. In the same line of multi-attribute conceptualisation of satisfaction are Cronin *et al.* (2000) who identified, among other elements, interest, enjoyment, surprise and anger.

Loyalty

The conceptualisation of loyalty has evolved over the years, starting from an emphasis on what is defined as behavioural loyalty. The notion that: “... No consideration should be given to what the subject thinks nor is what goes on in his central nervous system, his behaviour the full statement of what brand loyalty is ...” (Tucker, 1964, p. 32) is used to measure loyalty only by its outcome. The behavioural concepts of loyalty, which strictly look at repeat purchase behaviour (Cunningham, 1956; Tucker, 1964), are the proportion of purchase, sequence of purchase and probability of purchase (Jacoby and Chestnut, 1978). Jacoby (1971) provided a theoretical single-scale framework incorporating an attitudinal component while Dick and Basu (1994) decomposed the loyalty construct to its “relative attitude” and “patronage behaviour” characteristics. Gremler and Brown (1996) defined service loyalty as incorporating “purchase”, “attitude” and “cognition”. Zins’ (2001) study of the airport sector identified three aspects of loyalty:

- (1) behavioural;
- (2) attitudinal; and
- (3) a composite of the two.

The servicescape environment or the physical evidence

The simultaneous production and consumption of services usually requires the customer to enter the facility in which the service is offered before he/she can make the purchase decision. Therefore, the physical environment is a surrogate for the intangible service performance (Ward *et al.*, 1992).

A wide body of work has shown that physical environments, or servicescapes, in which the services are delivered and where the seller and the provider interact, play an important role in customers’ evaluation of the service (Bitner, 1992; Zeithaml and Bitner, 1996; Brady and Cronin, 2001). Servicescapes may be defined as the tangible or physical components of the service product that provide nudge to consumers and create an immediate perceptual image to customers’ mind (Kotler, 1978). It includes the exterior and interior design, ambient conditions and other communication material (Bitner, 1992; Baker *et al.*, 1994; Reimer and Kuelhn, 2005) Parasuraman *et al.* (1991) included in their work the “tangibles” dimension, comprising the appearance of the facilities, the equipment, the personnel and the communication material. Their dimension corresponds

to the servicescape element of services. Lehtinen and Lehtinen (1982) related the physical dimension of service quality to the tangible elements of the service.

Many works have identified the servicescape as an important determinant of consumer service evaluations. Levitt (1981) for example, noted that when customers evaluate a service, they always depend on their impression of the physical environment, or tangibles. Crane and Clarke (1988) reported that the servicescape influences perceptions in four industries. Oberoi and Hales (1990) noted the importance of tangibles or physical quality in customers' perceptions. In their study of a bank, Parasuraman *et al.* (1988) proposed that customers' perception of tangibles is more important than in product repair or maintenance. Finally, Lewis (1991) suggested that for the majority of respondents, tangible dimensions in banking service as physical safety, location, are important factors.

The interactive dimension

Interactive quality refers to the interaction (automated or animated) between a customer and a provider (or the provider's representatives) (Lehtinen and Lehtinen, 1982). This definition is close to what Gronroos (1982) has identified as functional quality, or "how" the service is provided. Berry *et al.* (1985) and Parasuraman *et al.* (1985) introduced the service delivery process evaluations during the performance of the service. Swartz and Brown (1989) argued for the "what" and "how" dimensions of service quality depending on the time of performance. These two-way interactions have been identified as a key element in a service exchange (Czepiel, 1990). Brady and Cronin (2001) found that perceptions of service interactions directly contribute to service quality. The behaviour and performance of any buyer-seller contact can have a significant bearing on the quality of customer relationship (Bowen and Schneider, 1988; Lengnick-Hall, 1996). Others recognise the increased importance of the interactive process between the buyer and the seller plays to the quality of service (Brown *et al.*, 1994; Svensson, 2001a, 2002; Heskett *et al.*, 1990; Echeverri, 1999; Gummesson, 1995; Larsson-Mossberg, 1994; Gronroos, 2000). As Gronroos (2001) stated, services are processes and not things, and thus, during the partly production and consumption of these processes, consumers arrive at an opinion about the service. Svensson (2004) concurs that services must be viewed from an interactive perspective.

The formulation of hypotheses

A popular conceptualisation of the service quality dimensions has been offered by Rust and Oliver (1994) They found that the perception of the offering may be decomposed to its customer-employee characteristics, the service environment, and the outcome of the offering *per se*. Brady and Cronin (2001) provide empirical confirmation from four industries, supporting Rust and Oliver's theoretical approach. This approach is similar to Grönroos (1982) contention of technical and physical quality of the service or Lehtinen and Lehtinen (1982) approach for physical and interactive quality (the "Nordic perspective"). They have also stated that service quality is defined by the customer's perspective on an organisation's technical and functional quality and the service environment. Parasuraman *et al.* (1985, 1988) suggested SERVQUAL as the five-factor instrument to measure service quality. Despite its widespread use, strong criticisms appear regarding its five factors structure (Cronin and Taylor, 1992; Bababkus, 1993) Mels *et al.* (1997) found a two-factor solution. The first, "intrinsic

quality”, describes the human interaction of the service (interactive quality) and the other, “extrinsic quality”, describes the physical aspects of the service (physical quality). Gotlieb *et al.* (1994) also proposed a two-dimensional construct for measuring service quality, incorporating a focal (direct or interactive) and a contextual (background or physical) stimuli. Yup and Sweeny (2007) confirmed that Service Quality comprises two kinds of service elements – tangible and process. Caceres and Paparoidamis (2007) found that perceptions of technical and functional quality are direct influences on relationship satisfaction.

Several researchers (Bitner, 1990; Boulding *et al.*, 1993; Taylor and Baker, 1994) concur that service quality and satisfaction are distinct constructs although there is no causal ordering in the literature (Bolton and Drew, 1991). Dabholgar (1995) has argued for the antecedent role of service quality and satisfaction depending on the situation and the characteristics (cognitive or affective) of the consumer. Olorunniwo *et al.* (2006), Kang and James (2004), Cronin and Taylor (1992), Spreng and Mackoy (1996) are among many researchers who agree that those two are distinct constructs and that service quality leads to satisfaction.

There are three notable distinctions between the two constructs:

- (1) the base of comparison of expectations where service quality refers to “ideal” offering while satisfaction seeks the “real or will” (Parasuraman *et al.*, 1988);
- (2) satisfaction assessments require customer experience with the service while quality does not (attitude) (Oliver, 1993; Cronin and Taylor, 1992); and
- (3) although quality dimensions are fairly specific, those of satisfaction are broader and poorly defined.

While most of the literature supports this dichotomy between service quality and satisfaction, certain discrepancies still remain. The expectancy/disconfirmation approach has been heavily criticised. The alternative approach notes that measurement of customers’ perception of performance of a service provides adequate assessment for the service (Grönroos, 1998; Cronin and Taylor, 1992) and preference to perception only measures is clearly evident in the marketing literature (Cronin *et al.*, 2000; Zeithaml *et al.*, 1996; Olorunniwo *et al.*, 2006). The belief that service quality is an attitude is based on a summation of customers’ beliefs and evaluations (Brady and Cronin, 2001). According to Churchill and Suprenant (1982), the operationalisation of satisfaction is similar to an attitude, as it can be assessed as satisfaction with the attributes of the product or the service. Therefore satisfaction can be examined at a service encounter or transaction-specific and at a relationship-specific (attitude) level (Bitner and Hubert, 1994; Oliver, 1999). Finally, Grönroos (2001) argues that:

[. . .] I never thought that the perceived service quality model would be anything other than a conceptual model that would help researchers and practitioners to understand the need-satisfying elements of a marketing context in a service context. . . I imagined that how well perceived service quality dimensions serve customers’ could and should be measured with customer satisfaction with the service [. . .] (Gronroos, 2001, p. 151).

He has therefore introduced the “technical” and “functional” features of services instead of technical and functional dimensions of quality in an attempt to avoid the confusing and time-consuming discussion of the relationship between service quality and customer satisfaction.

It is therefore logical to assume that service quality and relationship satisfaction are closely related and that the principal dimensions of one will accommodate the explanation of the other.

In line with Rust and Oliver (1994) and Bitner and Hubert (1994), we adopt the term “overall relationship satisfaction” as the cumulative effect of a set of discrete service encounters or transactions with the provider over time and course of the relationship and not as the outcome of a specific transaction.

In this light, it makes sense to agree with Wakefield and Blodgett (1999) and Reimer and Kuehn (2004) and to use a two-factor model to characterise overall perception of satisfaction: one representing the intangibles and the other representing the servicescape.

We therefore propose the following hypotheses:

- H1.* Perceptions of the servicescape or the physical environment (PHY) in which the service is offered has a positive direct influence on overall relationship satisfaction (OVE).
- H2.* Perceptions of the interactive features of the service (INT) have a positive direct influence on relationship satisfaction (OVE).
- H3.* The impact of the servicescape (PHY) features on overall satisfaction is of higher significance than the impact of the interactive (INT) features of service in a service factory.

Overall satisfaction with a service experience not only leads to but is also an important determinant of customer loyalty (Bloemer and Poiesz, 1989; Bearder and Teel, 1983; Selnes, 1993; Dick and Basu, 1994) and loyal customers had a lower probability to switch (LaBarbera and Mazursky, 1983). Bloemer and Karper (1995) suggested that repeat purchasing alone does not imply loyalty if it is not accompanied by a commitment to the brand or the firm. Otherwise this behaviour may be explained in terms of inertia which induces a customer to switch brands.

The relationship between customer satisfaction and brand loyalty is well established in the literature both at the “transaction specific” and the “overall” level (Oliver, 1999; Bitner and Hubert, 1994). Research findings provide robust evidence that there is a positive relationship between satisfaction and repurchase intention and/or loyalty (Anderson and Sullivan, 1994; Cronin and Taylor, 1992; Fornell, 1992; Oliva *et al.*, 1992; Anderson and Sullivan, 1994; Bloemer and Kasper, 1993). Certain typologies exist that classify customers across their satisfaction/loyalty perceptions from loyalists/apostles to hostages (Jones and Sasser, 1995) and prisoners (Curasi and Kennedy, 2002).

However, this relation seems asymmetrical: dissatisfaction almost guarantees switching but satisfaction does not ensure loyalty (Mittal and Lassar, 1998). Therefore, examining consumers’ reported purchase behaviour will not alone provide robust evidence on customers’ preferences unless the effect of customers’ attitudes and the choices available to the consumer are also examined (Oliver, 1999; Prichard and Howard, 1997). It is possible for a customer to be loyal without being satisfied (especially when few alternatives exist) or to be satisfied and yet not loyal (when many choices are available). In addition, it is possible for a loyal customer to find the service offering more satisfying than a non-loyal customer does. Although research has not

viewed loyalty as an explanatory variable of satisfaction, prospect theory offers a rationale why loyal customers may be more satisfied than non-loyal customers (Kahneman and Tversky, 1979; Mittal and Lassar, 1998). One possible explanation is that consumers become less sensitive to satisfaction level when switching costs increase (Hauser *et al.*, 1990). High switching costs or even the absence of alternatives may play a crucial role in forming an almost inelastic curve for average satisfaction depending on the industry (Anderson and Sullivan, 1994).

Another likely area of concern is the involvement/contact of the customer in the service delivery process and the reliability/customisation of the service that is being offered. Schnemmer (1986) four-group classification of factory, shop, mass and professional services provides an essential insight into degrees of customer interaction and labour intensity. Coastal shipping services in Greece and almost everywhere in the EU is a non-regulated industry, with rather low switching costs and a lot of alternatives and may be well classified as service factory like airlines, hotels, resorts and recreation. In light of these considerations, the aim is not to confirm the positive relationship between satisfaction and loyalty. Consistent with Oliver (1999) who suggests that loyalty increases satisfaction with the service provider, we form our fourth and fifth hypotheses:

- H4.* Loyalty to the service provider moderates the relationship between physical, interactive and overall satisfaction in a service factory, such as the coastal shipping sector.
- H5.* Overall satisfaction from the provider increases as loyalty increases in a service factory, such as the coastal shipping sector.

Market overview

The coastal shipping transportation in the European Union involves approximately 60 harbours and constitutes the most important route of transactions with Africa. A total of 75 per cent of imports and 64 per cent of exports are transported by sea. Greece has one of the densest networks of sea transportation in the world. Passenger shipping lines include coastal shipping lines, narrow passage ways, transportation and international coastal transportations and are served by car-ferries-passenger vessels, and by higher-technology boats (catamarans, sea-jets) (Table I). The basic characteristic of the Greek market was the predominance of cabotage (government regulated coastal shipping transportation) since the end of 2004 and the domination of the market by five large shipping firms which they intensively compete to for domestic and international lines (Greece-Italy, Baltic sea).

The sample

A qualitative phase was first performed in which responses were obtained from a small group of 20 customers. The main purpose of this survey was to test whether the respondents understood the terms “physical facilities” and “politeness and capabilities” of the staff. The respondents were encouraged to list all concerns that may have affected or limited their understanding of the questionnaire. The wording was therefore modified several times in an attempt to capture all of the satisfaction dimensions.

MSQ 18,6	Passenger traffic			
	2002	2003	2004	
	Denmark	48,178	48,653	48,555
	Germany	33,222	32,146	29,815
	Greece	101,210	102,760	96,416
	Spain	18,947	20,041	21,694
630	France	29,110	27,405	27,068
	Italy	82,700	82,576	83,316
	Netherlands	2,202	2,015	2,012
	Finland	16,577	16,341	16,806
	Sweden	32,112	32,748	33,318
	UK	35,623	33,708	32,837
	Norway	6,077	4,656	5,787
	Total EU (15 countries)	405,400	403,494	396,826

Table I.
Thousands of passengers **Source:** EUROSTAT (2005)

Three waves of sampling took place in three large Greek ports: Piraeus, Patras and Heraclion, in order to attain a sufficient number of survey respondents. The sample comprised adults who had completed at least a one-way route with a ferry operator. All respondents could therefore comment and evaluate on questionnaire items. Respondents were randomly selected from trained interviewers and requested to complete a questionnaire *in situ*, just in front of every vessel. Due to the nature of the survey, which was contacted outside the vessel's entrance and in a place where the respondents were in a hurry to leave, the questionnaire was restricted to the absolute minimum length. By having every fifth traveller complete a survey, 388 usable questionnaires were obtained.

The questionnaire

The questionnaire contained the measures of overall, physical and interactive satisfaction and loyalty, in addition to some demographic questions.

Overall, physical and interactive satisfaction from the vessel was measured by the following items:

- overall, from this vessel I am ...;
- overall, from the facilities (space, decoration, lounges, sitting areas) of this vessel I am ...; and
- overall, from the capabilities and politeness of the crew members/staff of this vessel I am ...

Responses for all these satisfaction items were made on a five-point Likert-type scale:

- (1) extremely dissatisfied;
- (2) somewhat dissatisfied;
- (3) neither satisfied nor dissatisfied;
- (4) somewhat satisfied; and
- (5) extremely satisfied.

Many of the items used to measure satisfaction were single-items measures (Cronin and Taylor, 1992; Taylor and Baker, 1994), although these have been criticised for their failure to capture all of the richness of a concept (Parasuraman *et al.*, 1994, p. 71). However, the problems associated with the use of single responses to those three items were mitigated by:

- (1) the qualitative phase;
- (2) the clarification of the questions; and
- (3) Yi's (1990) suggestion that a single overall satisfaction measure scored as this one is "reasonably valid".

One dichotomy question measures length of patronage with the same vessel:

- (1) How many times have you travelled on this (same) vessel?
 - it is my first time;
 - it is my second time; and
 - I have travelled with this vessel many times (more than twice).

Results

The questionnaire concludes with a set of questions eliciting socio-demographic information from the respondents. The highest percentage of the respondents (51.1 per cent) are 26-55 years old and 59.8 per cent of them are males. Among the respondents, 43.3 per cent had a bachelor degree and the 28.1 per cent of them are employees. The questionnaire presented in Tables II and III.

Analysis

First, scale reliability measured by coefficient alpha for the three satisfaction items was examined and an alpha value of approximately 0.8 was obtained. This score supports that the three items present good internal consistency. An exploratory factor analysis was next performed to examine whether all items load well on the same factor, indicating good convergent and discriminant validity (Asubonteng *et al.*, 1996; Buttle,

Items	Mean	SD
Overall satisfaction from the vessel	4.03	0.810
Overall satisfaction from the vessel's physical facilities	3.97	1.017
Overall satisfaction from the capabilities and politeness of the crew members/staff of this vessel	4.05	0.864

Table II.
Mean and standard
deviation

Item	Frequency	Per cent
How many times have you travelled with this (same) vessel?		
One	102	26.3
Two	58	14.9
More than two	228	58.8

Table III.
Frequencies

1996). Results of the principal components analysis with Varimax rotation indicate that the three satisfaction items load well on the same factor, explaining almost 70 per cent of the variance extracted. Thus, a one-factor model explaining overall satisfaction appears reasonable. In addition, a correlation analysis of the three items proves a rather strong positive relationship between dependent (overall) and independent (physical and interactive) variables and a weak association among independent variables of satisfaction (Table IV).

Logistic regression

Taking into account the categorical nature of the responses, the non-parametric method of multinomial logistic regression was selected and applied. This way the assumptions of multivariate normality and equal variance-covariance matrices are lessened and provided results are robust. All categorical variables up to now examined "overall satisfaction", "overall satisfaction from physical elements" and "overall satisfaction from interactive elements" (on a five-point scale) will therefore need to be transformed to binary variables of 0 and 1.

Responses of "extremely dissatisfied", "somewhat dissatisfied" and "neither satisfied nor dissatisfied" were recoded into a new "not satisfied" category (0), while the categories "somewhat satisfied" and "extremely satisfied" were recoded as "satisfied" (1). As a baseline, the first category "not satisfied" was used.

In arithmetical terms, the relationship between overall (OVE), physical (PHY) and interactive (INT) satisfaction, takes the form of:

$$(OVE) = Co + C1(PHY) + C2(INT)$$

where:

Co = exposure variable or constant.

C_{1,2} = logistic coefficients.

Items	OVE	PHY	INT	How many times have you travelled
OVE				
Pearson correl.	1	0.723	0.482	0.146
Sig.	0.000	0.000	0.004	
PHY				
Pearson correl.	0.723	1	0.381	0.170
Sig.	0.000		0.000	0.001
INT				
Pearson correl.	0.482	0.381	1	0.039
Sig.	0.000	0.000		0.445
How many times have you travelled with this (same) vessel?				
Pearson correl.	0.146	0.170	0.039	1
Sig.	0.004	0.001	0.445	

Table IV.
Variables' correlations

This equation is designed to predict the probability of an event, and the logistic coefficients predict, with the use of a variate, the occurrence or non-occurrence of an event (dependent variable). Tung (1985) and Kleinbaum (1994) stated that multinomial logistic regression is highly recommended when the dependent and independent variables are a mixture of qualitative and quantitative variables.

Assessing the fit

After transforming all of the satisfaction items to dichotomous ones, we proceed with the analysis. Multinomial regression in SPSS 15 with Maximum Likelihood is employed, which maximises the likelihood that an event will occur. The basic measure of how well the maximum likelihood estimation fits is the likelihood value. In assessing overall model fit (goodness of fit) the statistical (-2LL), the Cox and Snell's and Nagelkerke's pseudo R^2 , measures (similar to the overall F and R^2 in multiple regression) and classification accuracy which compare predicted to observed probabilities will be examined.

Results of both R^2 (0,602) and -2LL (15.156) indicate a very good model fit, an improvement on the one dependent variable solution in the prior step. Results of the model fit are presented in Tables V and VI.

Finally, the classification table (Table V), representing the level of predictive accuracy of the model, reveals that more than 90 per cent of the cases were correctly classified. This confirms that the two variables logistic regression model of satisfaction is acceptable in terms of classification accuracy.

Coefficients for the regression

Table VII shows that the estimated coefficients (under Heading B) for the two independent variables (PHY) and (INT) as well as the constant are all significant at the

Table V.
Results from the multinomial logistic regression

	Cox and Snell	R^2 Nagelkerke	Change in 2LL	Chi-square	df	Sig.
Final model	0.392	0.602	15.156	192.297	2	0.000

Table VI.
Classification table

Observed	Satisfied	Predicted Not satisfied	Per cent correct
Satisfied	281	20	93.4
Not satisfied	17	68	80.0
Overall percentage	77.2	22.8	90.4

Table VII.
Parameter estimates

Overall satisfaction from the vessel	B	Wald	df	Sig.	Exp (B)
"Satisfied"/intercept	-3.245	42.489	1	0.000	-
Physical elements (PHY) (Satisfied)	0.941	106.838	1	0.000	2.564
Interactive elements (INT) (Satisfied)	0.318	10.232	1	0.001	1.375

Note: Reference category is: Not satisfied

0.000 level, based on WALD statistics. Thus, they can be interpreted to identify the relationships affecting the predicted group membership.

Given these coefficients the equation can now be written as:

$$(OVE) = -3.245 + 0.941(PHY) + 0.318(INT)$$

Results from the logistic model indicate that interactive and physical elements have a positive effect on relationship satisfaction, confirming our first and second hypotheses. These results have been validated with the use of a special hold out sample for which the hit ratios were examined. Both samples exceed all comparison standards in terms of proportional change and maximum change criteria. Moreover, all of the group-specific hit ratios are sufficiently large and demonstrate sufficient external validity for the acceptance of all results. These outcomes lead to the conclusion that our first, second and third hypotheses are supported and that both the physical and interactive elements of service describe overall satisfaction, to which they are strongly and positively related.

Testing for moderating effects

The fourth hypothesis is that the relationship between overall satisfaction and its predicting elements of physical and interactive satisfaction are moderated from loyalty (times of use of the service). Such relationships imply that times of use change the level of the other dependent or independent variable (Baron and Kenny, 1986). As Table III reveals, loyalty has no significant linear relationship with any of the previously examined variables of satisfaction. This lack of relationship between the predictor and criterion variable supports the moderating role of loyalty and facilitates interpretation (Hair *et al.*, 2006).

The nature of the data (nonmetric) supports the use of Multiple Group Analysis (AMOS 5) to test the moderating effects by using the unstandardised beta coefficients of the different groups (Baron and Kenny, 1986).

Figures 1 and 2 represent the two models for each type of customer and standardised and unstandardised estimates after having collapsed the two and more than two times into a single category.

Initially, the two-group models were tested unconstrained. Then a second model was tested, adding a constraint by adjusting the relationship between physical and interactive elements of satisfaction to be equal in both groups. The effect on model fit may be estimated by the change in $\chi^2(\Delta\chi^2)$. In our case the first constraint imposed

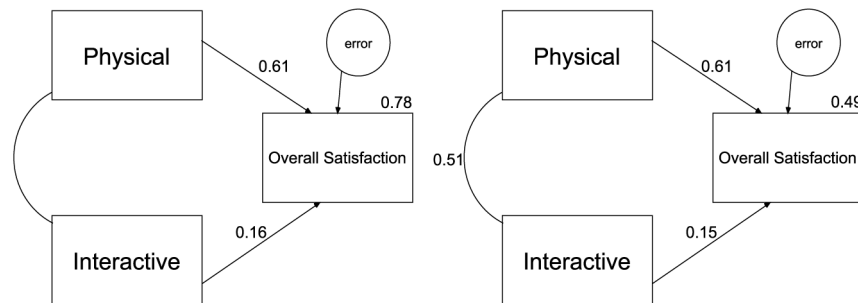


Figure 1.
Unstandardised and standardised estimates of first loyalty group (new customers)

harmd the model fit as the chi-square χ^2 increased from 0.72 (CMIN/Df) to 1.5 and is significant at 0.000 level. Hence, the model fit worsens and therefore the moderating effect of the loyalty (new or repeat customers) to the relationship between overall satisfaction and its physical and interactive elements is supported.

The analysis concludes with the examination of our last hypothesis that satisfaction increases with loyalty. A Kruskal-Wallis test was performed. The Kruskal-Wallis test identifies the differences between two conditions and different participants. Using as grouping variable the three loyalty customer groups (new and repeat customers) and as testing variables the overall satisfaction from the vessel and overall satisfaction from vessel's physical and interactive quality the test performed. Results are presented in Tables VIII and IX.

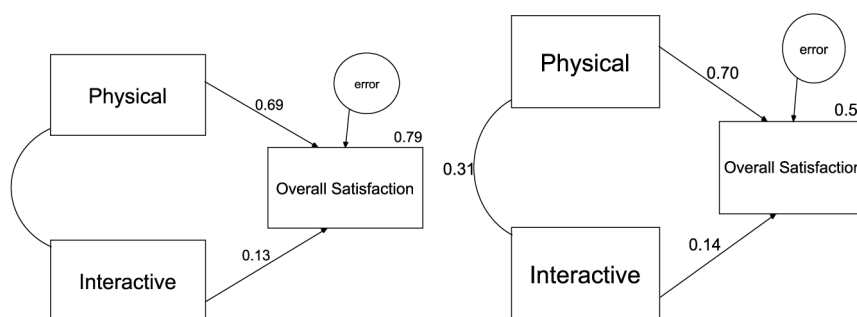


Figure 2. Unstandardised and standardised estimates of second loyalty group (repeat customers)

Items	How many times have you travelled with this (same) vessel?	N	Mean ranks
Overall satisfaction from the vessel	First time	102	171.03
	Two times	58	185.97
	More than two times	228	207.17
Overall satisfaction from vessel's physical facilities	First time	102	168.36
	Two times	58	176.87
	More than two times	228	210.68
Overall satisfaction from the capabilities and politeness of the crew members/staff of this vessel	First time	102	185.80
	Two times	58	211.38
	More than two times	228	194.10

Table VIII. Ranks

	Overall satisfaction from the vessel	Overall satisfaction from vessel's physical facilities	Overall satisfaction from the capabilities and politeness of the crew members/staff of this vessel
Chi-square	9.000	13.349	2.258
df	2	2	2
Asymp. Sig (two-tailed)	0.011	0.001	0.323

Table IX. Test statistics

According to Table VIII, satisfaction increases among the three groups of loyalty. The Kruskal-Wallis test ranks scores from lowest to highest (Field, 2005). Hence, the first group of loyalty (new customers) is the group with the lowest mean rank or the group with the greater number of lower scores within it; the second group of loyalty (repeat customers) is the group with the highest mean rank or the group with the greater number of high scores within it. In contrast, Table IX indicates that overall satisfaction with the politeness of the vessel's staff is not statistically significant ($p = 0.324$). This means that there are no differences among the three groups of loyalty (new and repeat customers) and overall satisfaction with the politeness of the vessel's staff.

Conclusions and discussion

Major findings

The purpose of this study was to assess the influence of physical and interactive elements of service on overall satisfaction, particularly when these elements are moderated by the point of view of new and repeat customers in a service factory. Many studies indicate an overestimation of intangibles (Wakefield and Blodgett, 1999; Parasuraman, 1991; Cronin and Taylor, 1992) over tangibles. A plausible explanation may be the time spent inside the physical environment or the primary interest of the customer. When little time is spent inside the servicescape and the customer uses the service mainly for utilitarian reasons, then tangibles may prove to be of less importance. However, in a service factory, following Schnemmer's (1986) taxonomy of services, low customer interaction is expected. Airlines, tracking, hotels and much likely coastal shipping may be classified as service factories. These industries should pay more attention to technological advances, capital investments and facilities. The customer usually spends more time in the environment without being much involved with the personnel of the provider. The more the time spent in the facility the greater the opportunity to be affected by the environment (Turley and Fugate, 1992). Our study showed that the servicescape is of greater importance in determining customer evaluations on overall satisfaction than interactive features of service. The results also suggest that the effect of physical and interactive elements on overall satisfaction is not just direct but also moderated by the repeat use of the service. Results further reveal that the relationship between loyalty and satisfaction, attack traditional intuitive assumptions about increasing satisfaction to gain loyalty. This asymmetric link between the two popular constructs does not guarantee that satisfied customers will remain loyal. In contrast, the drivers of "loyalty beyond satisfaction" seem different from the drivers of "dissatisfaction versus satisfaction" or "satisfaction beyond loyalty". In our data of a coastal shipping sector, satisfaction evaluations seem to increase with repeated use of the service. While our study focused on the passenger-shipping sector, similar service industries may benefit from its insights.

Managerial implications

This study has clear implications for service quality and satisfaction measurements for service factories' managers. It can be considered as an approach that captures the nature of satisfaction and loyalty constructs arguing for a "special" moderating role for loyalty. This approach confirms both the classical "physical" and "interactive" decomposition of the service offering supporting that the first is of major importance compared to the second in service factories. Therefore, it is expected that customers

attend the servicescape features and “icons” more than the interactive elements of service in enhancing the customers’ perception of overall satisfaction. Tangible cues, such as buildings and the settings within them, the “personal space or comfort zone”, the design or “way finding” factors, the meeting areas may better contribute to customer satisfaction than intangible elements alone. Instead of attributing more (or even sole nowadays) importance to the interactive elements of service (courtesy of personnel, service recovery, empathy etc.) this article recommends exploiting the “physical” or “servicescape” elements of service in order to best determine customer satisfaction. In this respect, effort and resources may be better allocated to improve means of transportation and providing more spacious or luxurious facilities than in investing in the intangible element of the service. An equally important aspect of this research is that these “servicescape” elements should be evaluated and measured by the customers themselves and not by travel professionals or engineers interpreting the “passengers’ perspective”. However, no concrete recommendations as to the exact nature of servicescape may be given. Instead, every service provider needs to develop its unique servicescape environment metrics.

Furthermore, results support that in order for service factory services strategies and tactics to yield desired results, attention should be given to increasing the loyalty of passengers/customers. Since the relationship satisfaction increases with the repeat purchase of services, loyalty requires special and primary attention. Customer loyalty seems to be an additional relationship satisfaction dimension and is not sufficient any more only to monitor service satisfaction regularly but is of great importance to merge loyalty into the measuring system. Specific customer loyalty schemes or club memberships may be of greater importance than measures to increase overall satisfaction alone. This applies in particular in view of the fact that club services or frequent users’ programmes experienced by the customers are usually under the direct control of the organisation’s management and thus all appropriate specifications and tests may be ensured. The findings show that in this service continuum managers should emphasise on loyalty and other rather low cost programmes first and then invest on “physical” or “servicescape” elements and interactive elements of service.

Limitations and suggestions for future research

This study’s contribution must be considered in light of its limitations. First and foremost, results are obtained from only one industry and therefore generalisations should be drawn with care. Given the great diversity of service industries, it would be helpful to carry out similar studies in other service factory industries. Further shortcomings of the study resulted from problems in the measurement of overall satisfaction. The use of three one-dimension items, although every precaution was taken, may not represent well the richness of the concept. More research may be needed to develop a valid measurement tool to assess the elements of satisfaction in a way that does not elicit fatigue, boredom or inappropriate response behaviour from respondents (Drolet and Morrison, 2001) and captures the numerous aspects engaged in measuring satisfaction. Additionally, more research is needed in the field of developing a valid measurement tool to assess the servicescape. A balance between extensive scales that might be erroneous due to the cognitive evaluations of aspects that customers would have never noticed before and short scales that do not sufficiently capture the richness of the construct should be achieved. Experimental methods can therefore make a valuable

contribution to the issue as well as other important cues (e.g. price, convenience) should be also examined as to reveal their relative weight in the choice process of customers. Finally, it would be interesting to re-examine the moderating relationship between satisfaction and loyalty incorporating the really “loyal” customers participating in relevant programmes and benefiting from them. Cultures and cultural values may be also used as generators of different satisfaction and loyalty evaluations.

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