



## Customer satisfaction study via a latent segment model

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### ABSTRACT

The aim of this study is to apply a new conceptual model, and a new technique as an approach to the modelling of customers' satisfaction, and to develop an overall satisfaction index (OSI). This study evaluates customers' satisfaction of a certain public organization service, and argues that in order to estimate the global customers' satisfaction measure we must appeal to methodologies recognizing that satisfaction must be understood as a latent variable, quantified through multiple indicators. Thus, it is natural that we consider the latent segment models (LSM) approach to proceed to the evaluation of customer's service satisfaction. As a result of these models estimation, we selected a three latent segment model, that is to say, the latent variable customer satisfaction has three classes: segment 1, with 50.4 percent of the customers, that represents "The Very Satisfied", for those to whom everything is very well in the organization service; a segment 2, with 33.4 percent of the customers, representative of the "The Well Satisfied", not totally satisfied with the quality of the organization, and a segment 3, with 16.2 percent of the customers, "Satisfaction Demanders", thinking that organizational quality can be improved. Finally, we developed an overall satisfaction index which is important to show how the company as a whole is performing.

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### 1. Introduction

Customer satisfaction is central to the marketing concept, with evidence of strategic links between satisfaction and overall service performance (Truch, 2006), and is an important theoretical and practical issue for most marketers and consumer researchers (Goode, 2001); it is a key issue for all those organizations that wish to create and keep a competitive advantage in this highly competitive world.

Customer satisfaction which remains in the limelight (Bartikowski and Llosa, 2004), especially in the service field, is typically defined as an overall assessment of the performance of various attributes that constitute a service.

The organization wants to know how satisfied their customers are in order to be translated into marketing strategy and organizational development. First, it was important to understand the ways that services can influence customer behaviour in terms of satisfaction, so that we may achieve a consistent customer satisfaction measure, knowing that satisfaction level increases as the congruence between the organization's goals and the customers' interest also increases (Garbarino and Johnson, 2001).

This service is a non-profit professional service, social service, whose customers are the organization's employees and organization's retired employees. For the organization management,

customer satisfaction could be indirectly measured by means of several response determinants (e.g. performance, equity, expectation, disconfirmation, attribution, etc.), and these impacts on satisfaction are heterogeneous (Wu and DeSarbo, 2005).

### 2. Literature review and conceptualization of service quality

Service quality has been studied for a long time. However, this literature also suggests that there is no consensus on how to conceptualize perceived service quality (Caro and García, 2007), and two different approaches have been adopted regarding this issue, mainly because of the difficulties involved in delimiting and measuring the construct (Parasuraman et al., 1985).

The first one suggests that perceived service quality is based on the disconfirmation paradigm (by a comparison between customers' expectations and their perceptions of the received service) (Gronroos, 1984; Parasuraman et al., 1985).

The second approach suggests that service quality should be measured considering only customer perceptions rather than expectations minus perceptions (Caro and García, 2007).

Nowadays we can see a movement away from using expectations, and the theoretical background of service quality is moving from expectation disconfirmation to the theory of reasoned action which states that the behaviour of individuals can be predicted from their intentions, which can be predicted from their attitudes about the behaviour and subjective norms (Collier and Bienstock, 2006).

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It is well known that service quality and customer satisfaction are distinct constructs (Dabholkar, 2000). Another important question was answered by Oliver (1993), which first suggests that service quality would be antecedent to customer satisfaction regardless of whether these constructs were measured for a given experience or over time. Spreng and Macoy (1996) find empirical support for this model, wherein customer satisfaction is a consequence of service quality, and Dabholkar (2000) proves that customer satisfaction is a consequence of service quality (mediator model of customer satisfaction).

The results of Bodet (2006) suggest that the quality of human factors, such as staff behaviour, and non-tangible factors, such as image, are determinant in the formation of customer satisfaction. In this sense, by knowing customers' perceptions about service quality we think that we can measure customer's service satisfaction, using service quality as an indirect approach to customer satisfaction.

Because of the difficulty in measuring the customers' expectations about a service quality (can they have expectations about unknown services?), we think that quality is about conformance to a service design or service specification. Once the design is set, quality is about ensuring that the end to be delivered to the customer meets this specification or design. As a consequence, from a service point of view, customer satisfaction is about monitoring the quality of delivery of the service, thus measuring how well the organization is delivering the providing service.

Services can only be experienced, and the production of a service takes place at the same time and in the same place as its consumption. The perception of service quality by customers during service delivery will be influenced mainly by three factors: *technical quality* (what the supplier delivers), result of know-how available to the organization, with objective evaluations; *functional quality* (how the supplier delivers), representing the way the service is provided (staff appear to be a key element in the service encounter and more precisely their capacity to answer or solve problems encountered by the customer on the premises, Bodet, 2006); the *image* (of the organization which is delivering the service, and the supplier's *corporate image*).

In order to provide insights for marketing managers to make better customer satisfaction measurement decisions, we think that service performance, with technical quality, functional quality and corporate image, is the best determinant of overall customer satisfaction in this particular service.

Bearing this service in mind, we think that increasing service performance is the key to increasing customer satisfaction (all the coefficient correlations between technical quality and functional quality are significant at the 0.01 level, Table 11). An important theoretical advantage of this approach is that its results are derived from actually experienced services performances. Though building on and extending (see Harris and Goode, 2004; Oliver, 1997) forwards a framework of service that presents quality which leads to satisfaction (which in turn affects loyalty). Customers completely satisfied (dissatisfied) with service quality and corporate image will be completely satisfied (dissatisfied) with service. So, following Oliver (1997), stating that service quality leads to satisfaction, and Caro and García (2007), suggesting that service quality should be measured considering only customers' perceptions rather than expectations minus perceptions, we intend to present a simplified conceptualization model (Fig. 1).

### 3. Measures and methodology

The organization uses a survey tool to collect these data from their key customer base, that is to say the target population being

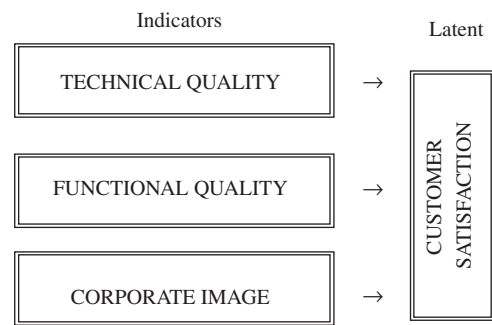


Fig. 1. Model conceptualization.

the visitors/customers to the service. All of the customers are post experience, because they can only be satisfied or not with the service, having experienced it. Because the number and nature of service quality dimensions is in direct relation to the service under analysis, the questionnaire used in this study was designed through a lot of discussions with the organization manager, after careful literature review. We use a careful questionnaire about different aspects of the service because the more detailed the information is, the more useful it is likely to be for improving the service. At a preliminary scale we use a set of 23 items representing all relevant sides of service quality as input to customer satisfaction. By using focus group interviews with students of the Technical University of Lisbon we simplified the scale, by eliminating some confusing items, and rewording others.

Because of customers' satisfaction was our main goal, we asked from customers' service how satisfied they were with service quality and image; the final questionnaire had 18 items with a 10-point Likert-type scale, ranging from 1 (indicates an extremely negative classification, *not at all satisfied or dissatisfied with service quality and image*) to 10 (indicates an extremely positive classification, *completely satisfied with service quality and image*).

Because overall satisfaction depends on how the customers experience the quality of different aspects like, for example, *service quality and expectations, reception and welcome, professional reliability, the orientation to the customer*, we used the attributes we present in Table 1.

These variables are the indicator variables or segmentation base variables, and the LSM is indicated because we have no response variable on global satisfaction in the questionnaire to indicate as dependent variable. For assessing content validity, the survey questionnaire was subjected to pre-test and refinement through a pilot study of 70 randomly selected customers.

The data for this study was collected from the service customers, using a face to face interviewing technique. An initial sample of 873 customers was obtained, but 17 questionnaires were considered non-valid. The final sample was representative of the individuals' population heterogeneity with regard to demographic characteristics such as *service, customer kind, gender and education*.

Reliability was examined through confirmatory factor analysis and each indicator loaded significantly on its designated factor ( $p$ -value < 0.01). Overall, the analysis produced chi-squared-degrees of freedom ratio well below the criterion of Marsh and Hocevar (1985) and adjusted goodness-of-fit significantly better than a one factor model. Reliability was also gauged via the Cronbach alpha coefficient, that Churchill (1979) suggested should be over 0.7 for a scale to be considered reliable; in this study, the Cronbach alpha coefficients range from 0.72 to 0.96.

We ran factor analysis with these items, in order to see if they were structurally related. The value of Kaiser–Meyer–Olkin (KMO)

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