

Development of a short questionnaire for measuring service quality perceptions

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Abstract This study describes the development and initial validation of a nine-item measure for assessing customer service quality perception in fast food restaurants. The new instrument operationalizes three dimensions of perceived service quality (*environment, staff, and product*). The psychometric properties of the questionnaire were assessed by computing a confirmatory factor analysis and reliability indices on the responses of 386 customers of a chain of restaurants in Mexico City. Predictive validity was also assessed, computing the relationships between the three dimensions of the questionnaire and one scale operationalizing customer behavioral intentions. The assessment of the psychometric properties of the new measure revealed that the three oblique factor structure of the questionnaire was robust, and also that the reliability of its scales was adequate. Apart from having good validity and reliability properties, the new measure provides two additional advantages: a very short administration time, plus a clear snapshot to identify which of the three dimensions of service has the highest impact on behavioral intentions.

Keywords Service quality perceptions · Scale development · Fast-food restaurants · Behavioral intentions

Introduction

Imagine you have just arrived at the largest mall of a city you have never been before. You are starving, and you go directly to the food court. Once there, you are impressed by seeing more than 30 different fast food restaurants with a wide culinary diversity, full of colors and aromas. The decision of where to line up is not an easy one. You walk around and realize that in some of those restaurants the wait could be more than 15 min, while in others, your order will be taken immediately. Could the taste of the meal, the facilities of the restaurant, or the attentiveness of the staff be the tradeoffs of waiting in such a long line? As a mind educated in the field of business, you start wondering which of the plethora of variables in service quality literature could be relevant to measuring if you were in charge of one of these restaurants. This is precisely the goal of this paper: to identify and select a small set of variables that could be used to develop a short questionnaire that captures the core of service quality perception in fast-food restaurants.

Perceived service quality

Service quality is a key factor for a restaurant to develop a sustainable competitive advantage (Chow

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et al. 2007) and to improve its performance. The delivery of an adequate level of service allows firms to achieve a distinctive and effective positioning in the hospitality sector. Perceived service quality (PSQ) has a relevant impact on customers' behavioral intentions (CBI) such as loyalty, returning intentions, and positive word of mouth recommendations (Zeithaml et al. 1996).

Both PSQ and CBI have been studied in the service marketing literature for several decades. The service quality (SERVQUAL) model and scale, developed by Parasuraman and collaborators (Parasuraman et al. 1985), have been seminal to operationalize the construct of PSQ. The original scale and further refinements (e.g., Rust and Oliver 1994) have been adapted to fit specific needs of different types of organizations in the service industry sector such as banking (e.g., Parasuraman et al. 1988), telecommunications (e.g., Parasuraman et al. 1991), education (e.g., Sangeeta et al. 2004), and hospitality (Juwaheer 2004). To the best of our knowledge, there is not a specific adaptation of the model for the fast food sector, where the time length for answering a questionnaire is critical. The main goal of the present study is to develop and validate a short questionnaire to be used in fast food restaurants, operationalizing key dimensions of the SERVQUAL and the Rust and Oliver (1994) three-component model and its impact on consumers' behavioral intentions (i.e., loyalty, returning intentions, and positive word of mouth recommendations).

The perceived service quality models

There are several perspectives in the conceptualization and operationalization of the construct of service quality (SQ) in the marketing and psychology literature. The two main approaches are internal versus external stand from apparent different views. The internal considers firms' quality system as the processes or the steps involved in delivering and receiving the service (Fisk et al. 1992; Reeves and Bednar 1994), such as conformance to requirements and standards, total quality management, and zero defects. The external or customers' service quality perception perspective focuses on customer expectation, such as customer satisfaction and customer attitude (i.e., Reeves and Bednar 1994; Sachdev and Verma 2004).

Within the external perspective, the literature in the field shows various approaches. For instance, the Nordic model (Gronroos 1984) suggests that service quality could be analyzed and assessed from both a functional (e.g. service delivering) and a technical (e.g. outcome of the service) perspective. Parasuraman and collaborators (1988) proposed a model combining both perspectives, containing the following five dimensions: tangibles (e.g. physical facilities), assurance (e.g. courtesy), empathy (e.g. individualized attention), reliability (e.g. service compliance), and responsiveness (e.g. prompt service). The first three relate to the functional dimension, and the last two, to the technical. A simplified version of Parasuraman and collaborators' model is the conceptual model of Rust and Oliver (1994), which proposes only three dimensions to analyze the construct: service product, service delivery, and service environment. These three key dimensions could offer a parsimonious alternative for operationalizing the broad concept of service quality in the context of fast food restaurants. Even when these dimensions could provide a reliable snapshot of the customer perceptions regarding service quality, this view will be enriched by identifying the relationships between these dimensions and customer behavioral intentions, providing decision makers a more informative overview, being this assessment at the same time, a predictive validity test for the new instrument.

Customer behavioral intentions

There are several instruments for measuring CBI in the marketing literature, from single-item measures (e.g., Cronin and Taylor 1992; Kang and James 2004) to a 13-item scale (Zeithaml et al. 1996). A close look into the content of these instruments indicates that the main assessed behaviors are: *purchase intention* (e.g., Cronin and Taylor 1992; Teas 1993), *chances of returning* (e.g., Chow et al. 2007; Oliver et al. 1997), *word of mouth* or *recommendation* (e.g., Yoon and Uysal 2005), and *loyalty* (e.g., Bell et al. 2005).

Customer behavioral intentions (CBI) could be conceptualized in two approaches: as an expression of the consumer brand preferences and the intent to repurchase or recommend, or as a real purchase sequence (Zhou and Jiang 2011). These behaviors could be used to measure the success of certain type of marketing strategies, such as the ones oriented to

delight, or to satisfy and retain customers, with the ultimate goal of increasing profits (Rust and Oliver 2000). In the context of fast food restaurants, the core of CBI could be captured by only measuring *chances of returning* and *word of mouth* recommendation.

The proposed model

Based on the ideas described in the previous sections, a parsimonious model with three oblique dimensions representing perceived service quality, grounded in the conceptual model of Rust and Oliver (1994) is proposed (see Fig. 1).

The construct structure for the new questionnaire, considers three dimensions as the core components of perceived service quality: environment, staff, and product. According to Chow and collaborators (2007) these variables are the key drivers of PSQ and customer satisfaction in the context of a restaurant. *Environment* encompasses all the elements related to physical facilities' functionality, visual attraction, and the general restaurant atmosphere. *Staff* refers to prompt service, attention to clientele, and customer individualized service caring. Finally, *product* clusters food appearance, texture, consistency, and flavor.

Promoters of the SERVQUAL approach believe that the construct needs to be measured before and after the service is provided, given that consumers possess a set of expectations regarding the service, and

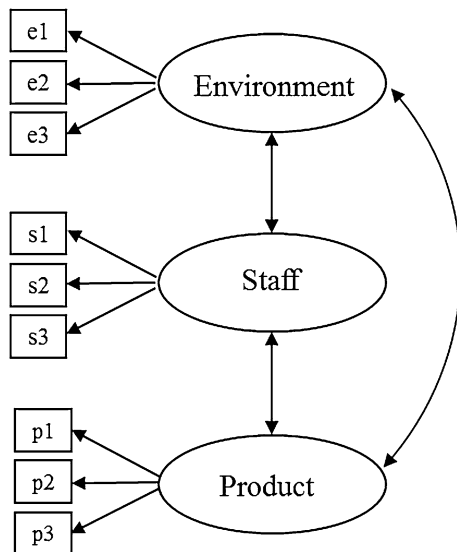


Fig. 1 The three oblique factor structure of the questionnaire

once this is provided, it is relevant to capture the difference between the expectations and the real service experienced. In an opposite position, the *service performance paradigm* (SERPERF: Cronin and Taylor 1992) suggests that service quality perception has to be evaluated considering only the performance of service. Accordingly, this approach posits that only one measure is required, and this has to take place once the service is provided. The model proposed in this study adopts the latter approach, based on the fact it is more aligned to the particular characteristics of the fast-food sector as described in the first paragraphs of this article, when the outsider arrives to the food court of a mall that is new to him.

In order to validate the proposed model, a short questionnaire was developed to operationalize the three dimensions contained in it, and then tested on the customers of a two-unit chain of fast food restaurants.

Method

Participants and context

A total of 432 customers of a taco fast-food restaurant chain with two units participated in the study by filling out a brief questionnaire. Forty-six cases were discarded due to incomplete answers, leaving complete data from 386 customers. Both units were located in middle class neighborhoods of Mexico City, with a mixed composition of residential and commercial buildings. The two branches had a high level of standardization in the design of facilities, the food (same suppliers, menu, and cooking processes), and constant inter-unit transfers of staff.

Participation in the study was requested in a systemic basis. The selection of administration day and time during working hours was done randomly over a 1-week period. Regarding the profile of the participants, 25.1 % of them worked in the vicinity, 38.9 % lived in the surrounding blocks, 8.6 % studied nearby, and 27.4 % were just visiting the area.

Scale development

Four focus groups were used to generate lists of potential items. One of the researchers conducted the sessions. First, the structure of the model and the content of each of its dimensions were described and

discussed in order to guarantee a perfect understanding of the variables. Then, based on items of the SERPERF scale (Cronin and Taylor 1994) and items of other instruments that measure behavioral intentions (i.e. Woodside et al. 1989; Zeithaml et al. 1996; Ganesh et al. 2000; Gamboa and Domenge 2011), two groups of MBA students (one of undergraduates in Hospitality, and one comprised of Marketing and Entrepreneurship professors) discussed, rephrased, and developed a list of more than 40 items. Finally, following the Psychometrics principle of using at least three items to measure a latent variable (Nunnally and Bernstein 1994), and also considering the goal of having a short instrument to be used in fast-food restaurants (where time is a critical factor for the administration process), the three items that best represented the essence of each of the three constructs contained in the proposed model were selected (see Table 1). To rate each of the nine items measuring perceived quality service, participants were asked: *How satisfied are you with the following aspects?* as the core question. A Likert-type scale with five anchors was used to rate each characteristic. The anchors were: 1 = *unacceptable*, 2 = *poor*, 3 = *fair*, 4 = *good*, and 5 = *exceptional*.

For measuring behavioral intentions, the criterion variable in the external validity assessment, three items were employed for operationalizing this construct: *how likely are you to return to (name of the restaurant)?*, *how likely are you to recommend (name of the restaurant) to a relative or friend?*, and *how likely are you to organize a special event in (name of the restaurant)?* A Likert scale with the following anchors were used for these items: 1 = *not at all likely*, 2 = *slightly likely*, 3 = *moderate likely*, 4 = *very likely* and 5 = *completely likely*.

Analysis

First, a confirmatory factor analysis (CFA) was performed to assess the three oblique factor structure of the questionnaire (see Fig. 1). Then, the internal consistency indices of the items associated with each of the three dimensions of the new instrument were estimated through the Cronbach's alpha coefficient. Since the proposed factor structure is oblique, suggesting theoretical relationships between the dimensions, composite reliability was also computed through Rho indices, which seem more adequate when an instrument possess an oblique structure. Then

Table 1 The nine items in English and its original version in Spanish

Item	Dimension	Estimated factor loading
E1.—The functionality of the facilities. <i>Sp.—La funcionalidad de las instalaciones</i>	Environment	0.740
E2.—The restaurant atmosphere <i>Sp.—La atmosfera del restaurante</i>		0.796
E3.—The visual attraction of the facilities <i>Sp.—La atracción visual de las instalaciones</i>		0.785
S1.—The promptness of the service received <i>Sp.—La prontitud del servicio recibido</i>	Staff	0.579
S2.—The attention received from the staff <i>Sp.—La atención recibida por parte del personal</i>		0.850
S3.—The willingness of the employees to provide you with personalized attention. <i>Sp.—La disposición de los empleados por atenderle en forma personalizada</i>		0.911
P1.—The physical appearance of the food <i>Sp.—La apariencia física de la comida</i>	Product	0.687
P2.—The texture and consistency of the food <i>Sp.—La textura y consistencia de la comida</i>		0.860
P3.—The taste of the food <i>Sp.—El sabor de la comida</i>		0.748

a correlation matrix was computed between the three dimensions of service quality and CBI. Finally, we regressed the three dimensions of perceived service quality on consumer behavioral intentions in order to assess the predictive validity of the new instrument.

Results

Before computing the fit of the responses from the 386 customers to the nine items of the questionnaire, to the hypothesized three oblique factor structure (see Fig. 1), data was tested for multinormality, in particular for multivariate kurtosis, in order to comply with the requisite for using maximum likelihood (ML) as the method of estimation. Since no evidence of serious violations to multinormality were found (Mardias' $PK < 3$; Mardia 1970), we proceeded to compute a confirmatory factor analysis on the data from the sample against the proposed structure. Results suggest an adequate adjustment, as can be inferred from the following goodness of fit indices: $\chi^2_{(df=24)} = 79.38$, $CFI = .981$, $NNFI = .972$, $RMSEA = .077$. The estimated factor loadings of each of the nine items are shown in the extreme right column of Table 1, ranging from .579 to .911, with a mean of .772.

Once construct validity of the new instrument was assessed, reliability indices were estimated for each scale. Firstly, the classic internal consistency index of Cronbach was computed for each scale. The highest alpha was for *environment* with .82, then *product* with .80, and finally *service* with .79. All coefficients were above the cutoff value of acceptance of .70 (Nunnally and Bernstein 1994).

As stated earlier, due to the oblique construct structure of the questionnaire, the composite reliability for each of the three scales was also calculated using the method proposed by Raykov and Shrout (2002), utilizing the factor loadings and errors from the CFA

as inputs, computed to assess the validity of the instrument. The Rho index for *environment* was .82, .81 for *product*, and finally .83 for *service*. All coefficients were above the recommended value of .60 (Bagozzi and Yi 2012).

Once the psychometric properties of the new instrument were assessed, a first-order correlation matrix was computed among study variables (see Table 2). A close look into the coefficients shows high and consistent correlations among the three components of service quality perception, and a high relationship between product and behavioral intentions, compared to the ones between this variable and environment and service.

Finally, we computed the multiple regression model using behavioral intentions as the dependent variable and the three dimensions of service quality as the independent variables, as a test of predictive validity of the new instrument. Before analyzing the results of the regression, the relationships between the independent variables were tested for multicollinearity because of the high correlations that can be seen on Table 2. The tolerance values ranged from .574 to .621, while the VIF (variance inflation factor) indicator ranged from 1.612 to 1.741. According to Cohen and collaborators (Cohen et al. 2003, p. 423) multicollinearity is an issue of concern when the VIF indicator is larger than 10, substantially higher than the number obtained from our data, which suggests that multicollinearity was not a problem in this case.

As can be seeing in Table 3, the three components of perceived service quality explain 48 % of the variance of behavioral intentions. The standardized betas for the three independent variables are significant at $p < .01$. The high value of the coefficient for the variable *product*, compared to the ones of *staff* and *environment*, is notable. The results suggest that for this particular chain of restaurants, the physical appearance, taste, and texture of the food are the key factors influencing the intentions of its customers to

Table 2 Means, standard deviations and intercorrelations among study variables

Variable	Mean	SD	Environment	Staff	Product
Environment	4.27	.65	–		
Staff	4.25	.68	.59	–	
Product	4.31	.64	.54	.56	–
Behavioral intentions	4.14	.91	.53	.51	.66

All coefficients were significant at $p < .01$

Table 3 The regression model for Behavioral intentions

Service quality dimension	Standardized betas
Environment	.183**
Staff	.137*
Product	.480**
Adjusted R^2	.477

* $p < .01$; ** $p < .001$

return and provide free, word-of-mouth publicity. It could also be said that the effect of *product* quality on behavioral intentions is more than double that of *environment* and *staff*.

Discussion

Our goal in the present study was to develop a short measure to capture key elements of perceived service quality in fast-food restaurants. The new measure operationalizes a parsimonious model of only three dimensions of perceived service quality, based on the model of Rust and Oliver (1994). The instrument contains nine items, three per dimension, and is administered in a very short time, a highly convenient feature considering that customers of this type of restaurants usually face time constraints and are reluctant to answer any kind of questionnaires or surveys.

The assessment of the psychometric properties of the new measure reveal that the three oblique factor structure of the questionnaire is robust, and also that the reliability of its scales is adequate. It should be noted that the questionnaire was developed in Spanish, therefore future research will be required in order to adapt and validate the instrument in different languages and cultures, and to assess its cross-cultural validity.

The instrument represents a tool of assessment of service quality, not only from a longitudinal perspective (that is, providing a measure of perceived quality over time and tracking the effects of some changes made in the service, staff, or product), but also potentially as a snapshot to diagnose the relative impact of each of the three dimensions of service on behavioral intentions.

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