SERVICE QUALITY IN RESTAURANTS: AN EXPERIMENTAL ANALYSIS PERFORMED IN BRAZIL

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Presently, tourism is one of the most promising economic activities and the success of this activity depends on the several service sectors, such as restaurants among them, where the quality of the services rendered is essential. In a dynammic environment, where the organizations should be able to face the different changes, it is essential that the restaurants search for competitive strategies. Several studies have been developed with the aim to assess the quality of the service in restaurants, trying to identify the needs, the expectations and the most important attributes of the service offered as the customers' point of view. However, it can be observed that generally these studies consider different dimensions and attributes, with focus in establishments with specific characteristics, such as, La Carte and Self-Service restaurants. In order to contribute for the problem treatment in question, this article applied a hybrid model based on existing models and studies to assess the quality of the services rendered by restaurants in the light of the dimensions and items inherent to this segment, according to the customers' perception. The study was performed in a self-service restaurant, in a municipality of Rio de Janeiro state, Brazil. An analysis with Cronbach's Alpha showed that 13 from 14 dimensions were considered reliable. However, in case one item is deleted, the reliability of the referred dimension becomes "high". It is believed that the referred model is applicable to assess the quality of the service in different kinds of restaurants.

Keywords: Service quality; service in restaurants; customer perception; self-service restaurants

1 Introduction

Nowadays, the tourism is characterized as an important activity of socio-cultural integration, which can promote exchanging of different cultures and the narrowing of the relationship between societies. The contributions to job and income generation are very relevant (IBGE, 2011).

As well as the oil and gas industry, at present the tourism sector occupies a relevant role in the world economy, being nowadays one of the most promising activities and with the largest economic representativeness (BNDES, 2005). The success of this activity depends on several service sectors such as the services provided in restaurants.

Service quality has been the subject of interest of investigators in several studies for many years, such as models developed by Parasuraman et al. (1985/1988), Gronroos (1988), Cronin and Taylor (1992). However, these models propose to assess the quality of services in a general way, not considering aspects related to the nature of the service rendered and to the current aspects of the activities in the sector in question.

Recently, several studies tried to assess the quality of services in restaurants. Among the most recent studies, it can be highlighted the following ones: Ryu and Jang (2007), Tinoco and Ribeiro (2008), Pinheiro *et al.* (2008), Silva *et al.* (2009), Kim and Moon (2009), and Shaharudin *et al.* (2011). Nevertheless, each of these studies considers different dimensions and attributes, focusing in establishments with specific characteristics (e.g., *La Carte* and *Self-Service* restaurants). In this sense, there is an impossibility of incorporating the results of these studies due to the difference between the realities existing in the different kinds of restaurants.

In order to contribute to the analysis of this problem, Barros and Freitas (2012) proposed a hybrid model to assess the quality of the services rendered by restaurants concerning dimensions and items (criteria) associated to infra-structure, to the services rendered and to the environmental actions according to the customers' perceptions. Based on existing models and scientific studies, the mentioned model wants to be applicable to assess the service quality in different types of restaurants.

In this context, the present article studies the use of the model proposed by Barros and Freitas (2012) in the assessment of the quality of service rendered by a self-service restaurant located in a municipality of Rio de Janeiro State, Brazil.

2 Service Quality

Services are a form of product that consists of activities, benefits, or satisfactions offered for sale that are essentially intangible and do not result in the ownership of anything (KOTLER and ARMSTRONG, 2006). However, some distinctive characteristics of service operations have been discussed all over the years (it is important to note that many of the characteristics of services are interrelated):

- Intangibility: most services are intangible. Because they are performances rather than objects, precise manufacturing specifications concerning uniform quality can rarely be set (PARASURAMAN *et al.*, 1985).

- Heterogeneity: services performance generally varies from producer to producer, from customer to customer, and from day to day (PARASURAMAN *et al.*, 1985). Furthermore, according to Freitas (2005), the great variety of existing services and the strong relationship with the human factor make more difficult the standardization of the activities and the price estimative.

- **Simultaneity:** Services are created and consumed simultaneously and, thus, cannot be stored. This inability to inventory services precludes using the traditional manufacturing strategy of relying on inventory as a buffer to absorb fluctuations in demand (FITZSIMMONS and FITZSIMMONS, 2006). Thus, the full impact of demand variations is transmitted to the system.

- **Perishability:** Because a service cannot be stored, it is lost forever when not used (Fitzsimmons and Fitzsimmons, 2007). Thus, in such case a lost opportunity has occurred.

All these characteristics are present in the services performed in restaurants. For instance, attendance at reserved tables that were not occupied by customers can not be allocated to another occasion (**intangibility** and **perishability**); unforeseen changes in the composition of the food or the restaurant occupation may affect the client (**simultaneity**), and the attendance of waiters may vary at certain times (**heterogeneity**).

Furthermore, the customer participation in the service process requires attention to the physical surroundings of the service facility. According to Bitner (1992), **ambient conditions** (e.g. temperature, noise, music, odor and odor), **spatial layout and functionality** (e.g., equipment and furnishing), and **signals, symbols and artifacts** (e.g., *no smoking* sign and style of décor) are environmental dimensions of *servicescapes* and they influence the behavior and the perception of the service for both customers and workers.

Because of the increasingly importance of service in the world economy, several studies have been conducted in order to measure service quality concerning the perception of customers and workers. In spite of the numerous considerable published works on the marketing literature and on the service quality field all over the world, there are still some lacks of consensus between researchers, managers and administrators concerning the real meaning of "service quality" (FREITAS, 2005). The only existent consensus is that service quality is still an elusive and abstract construct that is difficult to define and measure (PARASURAMAN *et al.*, 1985, 1988; CARMAN, 1990; CRONIN and TAYLOR, 1992).

Another point of disagreement among managers and marketing researches concerns in the most adequate way to measure service quality. However, the SERVQUAL scale (PARASURAMAN *et al.*, 1988) has been the dominant and traditional technique to measure service quality. Supported on the gap theory, SERVQUAL suggests that service quality can be defined as the difference between customers' expectations of service and their perceptions of actual service performance.

On the other hand, SERVQUAL has been the subject of criticism and debate in many published studies, including issues regarding to measuring scale, measuring time, and service quality dimensions (CARMAN, 1990; BABAKUS and BOLLER, 1992; CRONIN and TAYLOR, 1992; TEAS, 1993; BROWN *et al.*, 1993; LEE *et al.*; 2000). For example, Cronin and Taylor (1992) argued that if "service quality is considered similar to an attitude", its measure could be better represented by an attitude-based conceptualization. Therefore, they suggested that the expectations scale (SERVQUAL) should be discarded in favor of a performance-only measure of service quality, that they named SERVPERF.

While there is still a lot of disagreement about the mentioned subject, such analysis is out of the scope of this article. Regarding the evaluation of services in restaurants, recent studies have been conducted in order to: measure the service performances of fast-food restaurant franchises in the USA and identify salient factors influencing the service performances of fast-food restaurants over time (MIN and MIN, 2011); examine how customers' perceptions of the physical environment influenced disconfirmation, customer satisfaction, and customer loyalty for first-time and repeat customers in upscale restaurants (RYU and HAN, 2011); identify the attributes which influence customers' decisions to purchase fast food products (SHAHARUDIN *et al.*, 2011); identify the relationship between perceived quality and satisfaction/loyalty, and also the role of customer perceptions of atmospherics in an ethnic

restaurant segment (HA and JANG, 2010); identify the main determinants of perceived quality and price for la carte restaurant customers (TINOCO and RIBEIRO, 2008), a evaluate the customers' perceived consumer values in restaurant meal experiences and to compare the results with other studies on consumer values and service quality and with studies of meal experiences (JENSEN and HANSEN, 2007).

Nevertheless, each of the above studies presents different dimensions and attributes, focusing on establishments with specific characteristics (e.g., la carte and self-service restaurants). In this sense, there is an impossibility of generalize the results of these studies due to the difference between the realities existing in the different kinds of restaurants.

3 Description of the Model Proposed by Barros and Freitas (2012)

In order to develop an evaluation model to assess service quality in restaurants, existing scientific studies were surveyed to obtain research development subsidies. By doing so, Table 1 shows the fourteen dimensions that have been proposed by Barros and Freitas (2012).

Table 1 – Service Quality Dimensions considered by Barros and Freitas (2012).

DIMENSIONS
Reliability (D$_1$): Ability to perform the promised service dependably and accurately (PARASURAMAN *et al.,* 1988; CRONIN and TAYLOR, 1994).
Responsiveness (D$_2$): Willingness to help customers and provide prompt service (PARASURAMAN *et al.,* 1988; CRONIN and TAYLOR, 1994).
Assurance (D$_3$): Knowledge and courtesy of employees and their ability to inspire trust and confidence (PARASURAMAN *et al.,* 1988; CRONIN and TAYLOR, 1994).
Empathy (D$_4$): Caring, individualized attention the firm provides its customers (PARASURAMAN *et al.,* 1988; CRONIN and TAYLOR, 1994).
Product Quality (D$_5$): It is associated to how the food is being prepared and presented to the consumers (SHAHARUDIN *et al.* , 2011; JANG and NAMKUNG, 2009).
Ambient Conditions (D$_6$): It includes characteristics of the environment such as temperature, light, sound, odor, music (BITNER, 1992; WAKEFIELD and BLODGETT, 1999; RYU and JANG, 2007; KIM and MOON, 2009; RYU and HAN, 2011).
Cleanliness Facility (D$_7$): Consumers implicitly can associate cleanliness level to the perceived service quality (WAKEFIELD and BLODGETT, 1996).
Aesthetics & Premises Facility (D$_8$): The architectural project contributes to the environmental attractiveness (WAKEFIELD and BLODGETT, 1996) and other aspects of interior design (e.g. furniture, images and/or painting, plants and/or flowers, or wall decorations can also be used to improve the quality perceived in the dinner environments, creating emotions in customers (RYU and JANG, 2007; JANG and NAMKUNG, 2009; KIM and MOON, 2009; RYU and HAN, 2011).
Layout (D$_9$): In restaurants, layout refers to the way corridors and walkways, food service line, restrooms, and entrances and exits are disposed in a corrected and organized way (BITNER, 1992; WAKEFIELD and BLODGETT, 1996; RYU and JANG, 2007; KIM and MOON, 2009; RYU and HAN 2011).
Electronic Equipment/Displays (D$_{10}$): Signals or equipments that can be used to deliver and to improve the offering of the primary service. They are used to display information and to entertain the customers during the service rendered. (WAKEFIELD and BLODGETT, 1996, 1999; KIM and MOON, 2009).
Seating Comfort (D$_{11}$): Space of seat, padding, backrest and fabric/heat of the seating seems to be important for other leisure services wherein customers remain in the same seat for extended time periods of time (WAKEFIELD and BLODGETT, 1996; KIM and MOON, 2009).
Service Staff (D$_{12}$): It includes the appearance, the number and the gender of the employees (Baker et al., 1992; Ryu and Jang, 2007; RYU and HAN, 2011). The interactions between the *service staff* and the customers are not considered as physical environment elements, since they are not attributes of tangible quality. (RYU and HAN, 2011).
Table Settings (D$_{13}$): High quality flatware, china, glassware, linen and the way in which the table is decorated can be effective tools to influence customers' perceptions of overall restaurant service quality (RUY and HAN, 2011).
Environmental Actions (D$_{14}$): It refers to items related to environmental management (GIL *et al.,* 2001; KHAN, 2003; MENSAH, 2006; ERDOGAN and BARIS, 2007).

Source: the authors

Several items were added to the proposed dimensions to make the model more comprehensive and, thus, a data collect instrument (questionnaire) was developed (Appendix A). The questionnaire was divided into 3 blocks: **Block 1** (This block of questions identifies the characteristics and profile of the respondents); **Block 2** (By using a value scale ranging from 0 (Very Bad) to 10 (Very Good), the customers evaluate the performance of the service provided by the restaurant concerning each item. The options "(N/A) Not Applicable" and "(N/U) I did not understand" can be used by the customer if the question is not relevant to service quality in restaurants or if the question is not clear, respectively), and **Block 3** (This block contains space for comments, feedback, criticism, and suggestions for improvement by the customer).

4 Experimental Study

The study was conducted in a self-service restaurant located in Itaperuna, a city of Rio de Janeiro state, Brazil. The restaurant has been operating for over 70 years and nowadays has

nine employees. It is estimated that 100 to 150 customers are served daily. Convenience sampling was used to collect data and judgments from the customers. According to Malhotra (2006) such technique is a nonprobability sampling technique because it relies on the personal judgment of the researcher rather than chance to select sample elements – the researcher can arbitrarily or consciously decide what elements to include in the sample. A questionnaire was designed for measuring respondents' perceptions regarding the Performance of the restaurant in terms of each item (criterion).

4.1   The respondents' profile (Block 1)

The data collection was performed from 03/July/12 to 09/July/12. The average time to answer the instrument was about 10 minutes. 41 customers participated of the study and only one questionnaire was discarded. Table 2 shows that most of the respondents were female (55%). Only 10% of the respondents confirmed to have a monthly income less than R$ 1.000,00. In terms of age, 85% of the respondents are over 25 years old. In terms of school background, 75% of the respondents have university degree. Furthermore, 75% of the respondents go the restaurant more than once a week. Somehow these three last aspects can contribute to a good credibility of the answers.

Table 2 – Respondents' data profiles

Responses of each response category (%)				
Gender	Male (45.0)	Female (55.0)			
Age group (years)	18 to 24 (15.0)	25 to 34 (40.0)	35 to 44 (25.0)	45 to 60 (15.0)	61 to 80 (5.0)
Monthly income (R$)	0 to 999.99 (10.0)	1,000.00 to 1,999.00 (35.0)	2,000.00 to 4,000.00 (35.0)	More than 4.000,00 (20.0)	
Frequency of visits	Once a week (or more) (75.0)	Once a month (25.0)	Twice a year (0.0)	Once a year (0.0)	
Education level	Elementary School (2.5)	High School (22.5)	Undergraduate (45.0)	Graduate School (30.0)	

Source: the authors

4.2   The Performance of the restaurant (Block 2)

Cronbach's alpha coefficient (CRONBACH, 1951) was used to measure the reliability of the questionnaire. Since all items of each dimension has the same measurement scale, the alpha coefficient ($\alpha \in [0,1]$), was calculated from the variance of the individual items. Equation 1 provides the formula for calculating Cronbach's α, where k represents the number of items in each dimension, S_q^2 represents the variance of each item, and S_t^2 represents the total variance for each dimension.

$$\alpha = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum_{i=1}^{k} S_i^2}{S_t^2} \right) \tag{1}$$

Cronbach's α is one of the most commonly used statistical procedures for measuring the reliability of a data-collecting tool (FREITAS and RODRIGUES, 2005). These authors also suggested a reliability rating based on Cronbach's α, because there is no consensus on the interpretation of α in academia (Table 3).

Table 3 – Reliability based on Cronbach's α

Reliability	Very Low	Low	Moderate	High	Very High
α value	$\alpha <= 0.300$	$0.300 < \alpha <= 0.600$	$0.600 < \alpha <= 0.750$	$0.750 < \alpha <= 0.900$	$\alpha > 0.900$

Source: adapted from Freitas and Rodrigues (2005)

Table 4 shows the frequency of N/A and N/U answers, the Average Performance for each item $(\bar{P})_i$, the Average Performance for each dimension $(\bar{P})_D$, and the General Performance

$(\bar{P})_G$, the value of Cronbach's Alpha related to each dimension, and also the alpha's value of each dimension, if a particular item of the dimension is excluded from the questionnaire (αIE column). For items where the respondents selected "(N/A) - Not applicable" or "(N/U) - I did not understand", the "blank values" were substituted by the performance averages for the respective items. According to Freitas and Rodrigues (2005), this method is one of the most used procedures by professional statistical packages.

Higher frequency of N/A answers refer to items which are not very pertinent to *self-service* restaurants (menus with correct information, time in which the services will be performed and the customized attention) or not easily noticed by the customers (kitchen cleaning and environmental practices). Few items were not understood by the respondents. Since dimension D_{13} has only two items, it was not possible to calculate the α-value of the dimension if one item is excluded.

Analysis of the data in Table 4 shows that only Dimension 6 (Ambient Conditions) can be identified as having "low" reliability at $\alpha = 0.581$ (It is important to notice that, if the item I_{26} is excluded from the questionnaire, the reliability of this Dimension "Environmental Conditions" changes from "Low" to "High"). On the other hand, Environmental Actions was classified as having "Very High" reliability. "Reliability", "Receptiveness" and "Cleaning" have "Moderate" reliability and the other dimensions were identified as having "High" reliability.

Table 4 - Block 2 data analysis

Dimensions	Item	$(\bar{P})_i$	$(\bar{P})_D$	αD	Reliability	αIE
		$(\bar{P})_C = 7.78$				
Reliability (D₁)	I₁	9.4286				0.718
	I₂	9.0000				0.483
	I₃	9.3125	9.404	0.681	Moderate	0.461
	I₄	9.5385				0.580
	I₅	9.7391				0.735
Responsiveness (D₂)	I₆	7.5455				0.796
	I₇	8.7692	8.219	0.731	Moderate	0.627
	I₈	9.0500				0.581
	I₉	7.5128				0.681
Assurance (D₃)	I₁₀	9.1250				0.631
	I₁₁	9.3750	9.290	0.758	High	0.787
	I₁₂	9.1750				0.636
	I₁₃	9.4857				0.726
Empathy (D₄)	I₁₄	8.2424				0.778
	I₁₅	9.8205				0.894
	I₁₆	7.5200	8.507	0.862	High	0.805
	I₁₇	8.6486				0.815
	I₁₈	8.3056				0.836
Product Quality (D₅)	I₁₉	9.4000				0.700
	I₂₀	9.4750				0.761
	I₂₁	9.6000	9.506	0.832	High	0.807
	I₂₂	9.5500				0.848
Ambient Conditions (D₆)	I₂₃	8.2000				0.352
	I₂₄	8.9250				0.402
	I₂₅	8.5128	7.338	0.581	Low	0.369
	I₂₆	3.7143				0.807
Facility Cleanliness (D₇)	I₂₇	8.5000				0.773
	I₂₈	8.6667				0.668
	I₂₉	8.6250	8.673	0.716	Moderate	0.580
	I₃₀	8.9000				0.539

Table 4 – *continuation*

Dimensions	Item	$(\bar{P})_i$	$(\bar{P})_D$	αD	Reliability	αIE
Facility Aesthetics & Premises (D8)	I31	6.5500	6.865	0.889	High	0.844
	I32	6.4359				0.832
	I33	6.8250				0.838
	I34	7.6500				0.907
Layout (D9)	I35	8.1250	7.919	0.754	High	0.689
	I36	7.1282				0.704
	I37	8.4500				0.777
	I38	7.9737				0.579
Eletronic Equipment/Displays (D10)	I39	5.7576	5.043	0.891	High	0.842
	I40	4.5000				0.807
	I41	5.1515				0.866
	I42	4.7647				0.920
Seating Comfort (D11)	I43	8.5250	8.225	0.815	High	0.734
	I44	7.7250				0.584
	I45	8.4250				0.859
Service Staff (D12)	I46	8.5500	8.617	0.873	High	0.817
	I47	8.7750				0.805
	I48	8.5250				0.840
Table Settings (D13)	I49	7.8000	6.875	0.787	High	* * *
	I50	5.9500				* * *
Environmental Actions (D14)	I51	3.0000	2.317	0.925	Very High	0.939
	I52	2.2857				0.866
	I53	1.6667				0.872

Source: the authors

Quartile Analysis (Freitas *et al*., 2006) was also conducted to identify which items were most critical. Such analysis is a ranking measure which classifies items by four priority levels (**critical**, **high**, **moderate**, and **low**) based on to the performance averages for the items. Items with performance averages below the first quartile are designated as critical priority because the averages are lowest for these items, and items with performance averages above the third quartile are designated as low priority.

Chart 1 shows that the most critical items are related to following dimensions: Environmental Actions (I53, I52 and I51), Ambient Conditions (I26), Electronic Equipments dimension (I40, I42, I41, I39), Table settings (I50), Facility Aesthetics & Premises (I32, I31, I33), Layout (I36) and Responsiveness (I9). Such items should therefore be analyzed firstly by the manager/owner of the restaurant in order to provide possible improvements.

Chart 1 - Quartile Analysis.

PRIORITY		Item														
	CRITICAL	Item	I53	I52	I51	I26	I40	I42	I41	I39	I50	I32	I31	I33	I36	I9
		Average	1.67	2.29	3.00	3.71	4.50	4.76	5.15	5.76	5.95	6.44	6.55	6.83	7.13	7.51
		1ˢᵗ Quartile = 7,51														
	HIGH	Item	I16	I6	I34	I44	I49	I38	I35	I23	I14	I18	I45	I37	I27	
		Average	7.52	7.55	7.65	7.73	7.80	7.97	8.13	8.20	8.24	8.31	8.43	8.45	8.50	
		2ⁿᵈ Quartile = 8,50														
	MODERATE	Item	I25	I43	I48	I46	I29	I17	I28	I7	I47	I30	I24	I2	I8	
		Average	8.51	8.53	8.53	8.55	8.63	8.65	8.67	8.77	8.78	8.90	8.93	9.00	9.05	
		3ʳᵈ Quartile = 9,05														
	LOW	Item	I10	I12	I3	I11	I19	I1	I20	I13	I4	I22	I21	I5	I15	
		Average	9.13	9.18	9.31	9.38	9.40	9.43	9.48	9.49	9.54	9.55	9.60	9.74	9.82	

Source: the authors

4.3   The General Performance and the Open Answers

The General performance of the restaurant was 7.78. Some criticisms mentioned by the respondents were related to machinery noises in the ambient and the absence of alcohol gel. The respondents would recommend and come back to the restaurant.

5   Final Considerations

As well as assessment and classification of accommodation has been object of studies in the last years, the restaurant sector have attracted the attention of investigators in several knowledge areas, such as: Administration, Tourism, Production Engineering (emphasis in Quality Management and Service Quality). Due to international events to be held in Brazil in the next years, studies and practiced applied to this subject become relevant to the country, which motivated the conduction of this study. In special, this article proposed to investigate the applying of the model proposed by Barros and Freitas (2012) in the assessment of the quality of the services rendered by one self-service restaurant.

Cronbach's Alpha analysis showed that 13 of 14 dimensions were reliable, except in one, classified as "Low" reliability. However, the analysis showed that if an item is excluded, the reliability of the mentioned dimension becomes "High". This aspect will be investigated in a further study.

With frequency distribution, it was obtained important information regarding the customers' profile and, with the Quartile Analysis, it was possible to identify critical items which should be assessed first by the restaurant to promote possible improvements. It is believed that the mentioned model is applicable to the assessment of the quality of the services in other kinds of restaurants. The continuity if this study aims to investigate the use of model in other kinds of restaurants and to consider samplings with higher number of respondents.

References

Babakus, E. and Mangold, W.G. (1992). Adapting the SERVQUAL scale to hospital services: an empirical investigation. Health Services Research, 26(2): 767-786.

Baker, J.; Levy, M. and Grewal, D. (1992). An experimental approach to making retail store environmental decisions. Journal of Retailing 68 (4): 445–460.

Barros, M. D. and Freitas, A. L. P. (2012). Assessment of service quality in restaurants: A propose of model and an experimental study. [In Portuguese]. XIX SIMPEP - Simpósio de Engenharia de Produção.

Bitner, M. J. (1992). Servicescapes: the impact of physical surroundings on customers and employees. Journal of Marketing. 56: 57–71.

BNDES. (2005). Tourism Sector in Brazil: Hotel Segment. [In Portuguese] Banco Nacional de Desenvolvimento Econômico e Social.

Brown, T. J., Churchill, G. A., and Peter, J. P. (1993). Improving the Measurement of Service Quality. Journal of Retailing, 69(1): 127-139.

Carman, J.M. (1990). Consumer perceptions of service quality: an assessment of the SERVQUAL dimensions. Journal of Retailing, 66: 33-55.

Cronbach, L. J. (1951). Coefficient Alpha and the Internal Structure of Tests. Psychometrika 16 (3): 297–334.

Cronin, J. J. and Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. Journal of Marketing, 55-68.

Cronin, J. J. and Taylor, S. A. (1994). Servperf versus Servqual: Reconciling Performance-Based and Perceptions-Minus-Expectations Measurement of Service Quality. Journal of Marketing, 58(1): 125-131

Erdogan, N.; Baris, E. (2007). Case Study: Environmental protection programs and conservation practices of hotels in Ankara, Turkey. Tourism Management, 28: 604–614.

Fitzsimmons, J. A. and Fitzsimmons, M. J. (2006). Service management: operations, strategy and information technology. 5th ed. McGraw-Hill/Irwin, New York, NY.

Freitas, A. L. P. (2005). Service quality in the context of competitivity. [In Portuguese]. Revista Produção on-line, Florianópolis, 5(1).

Freitas, A. L. P., and Rodrigues, S. G. (2005). Evaluating the reliability of questionaries: an analisys using Cronbach's α.[In Portuguese]. XII SIMPEP - Simpósio de Engenharia de Produção.

Freitas, A. L. P., Manhães, N. R. C., and Cozendey, M. I. (2006). Using SERVQUAL to evaluate the Quality of Information Technology Services: An experimental analisys. [In Portuguese] XXVI ENEGEP - Encontro Nacional de Engenharia de Produção.

Gil, M. J. A.; Jimenez, J. B.; Lorente, J. J. C. (2001). An analysis of environmental management, organizational context and performance of Spanish hotels. The International Journal of Management Science: Omega, 29: 457–471.

Gronroos, C. (1984). A service quality model and its marketing implications. European Journal of Marketing. , 36-44.

Gronroos, C. (1988). Service quality: the six criteria of good perceived service quality. Review of Business, 9(3): 10-13.

Ha, J.; Jang, S. (2010). Effects of service quality and food quality: The moderating role of atmospherics in an ethnic restaurant segment. International Journal of Hospitality Management 29: 520–529.

IBGE. (2011). Research of Hospedagem Service. [In Portuguese] Instituto Brasileiro de Geografia e Estatística.

Jang, S. S and Namkung, Y. (2009). Perceived quality, emotions, and behavioral intentions: Application of an extended Mehrabian – Russell model to restaurants. Journal of Business 62: 451-460.

Jensen, O; Hansen, K. V. (2007). Consumer values among restaurant customers. Hospitality Management 26: 603-622.

Khan, M. (2003). ECOSERV Ecotourists' Quality Expectation. Annals of Tourism Research, 30(1): 109–124.

Kim, W. G. and Moon, Y. J. (2009). Customer`s cognitive, emotional, and actionable response to the servicescape: A test of the moderating effect of restaurant type. International Journal of Hospitality Management, 144-156.

Kotler, P.; Armstrong, G. (2006). Principles of Marketing. 11th ed. Pearson Prentice Hall. New Jersey, USA.

Lee, H., Lee, Y., and Yoo, D. (2000). The Determinants of Perceived Service Quality and its Relationship with Satisfaction, Journal of Service Marketing, 14(3): 217-231.

Malhotra, N. K. (2006). Marketing Research: An Applied Orientation. 5th. ed. Pearson Prentice Hall.

Mensah, I. (2006). Environmental management practices among hotels in the greater Accra region. International Journal of Hospitality Management, 25: 414–431.

Min, H.; Min, H. (2011) Benchmarking the service quality of fast-food restaurant franchises in the USA: A longitudinal study. Benchmarking: An International Journal. 18(2): 282-300.

Parasuraman, A.; Zeithaml, V. A and Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, 41-49.

Parasuraman, A.; Zeithaml, V. A. and Berry, L. L. (1988). Servqual: Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. Journal of Retailing, 64(1): 12-39.

Pinheiro, F. A., Leite, A. A. M. and Oliveira, M. S. A. (2008). Assessment of the Quality Noticed in that Typical Thematic Restaurant. [In Portuguese]. Revista Gerenciais, São Paulo, 7(1): 53-59.

Ryu, K. and Han, H. (2011). New or repeat customers: How does physical environment influence their restaurant experience? International Journal of Hospitality Management, 599–611.

Ryu, K. and Jang, S. (2007). The effect of environmental perceptions on behavioral intentions through emotions: the case of upscale restaurants. Journal of Hospitality & Tourism Research 31 (1): 56-72.

Shaharudin, M. R.; Mansor, S. W. and Elias, S. J. (2011). Food Quality Attributes among Malaysia's Fast Food Customer. International Business and Management. 2(1): 198-208.

Silva, L. M. T., Medeiros, C. A. F. and Costa, B. K. (2009). Quality of Touristic Services in Restaurant Sector: The Use of SERVPERF Model. [In Portuguese]. Revista Hospitalidade, 6(2).

Teas, R. Kenneth. (1993), Expectations, Performance Evaluation and Consumers' Perceptions of Quality, Journal of Marketing, 57: 18-34.

Tinoco, M. A. C. and Ribeiro, J. L. D. (2008). Qualitative study of main attributes that determine the consumer quality and price perceptions of a la carte restaurants. [In Portuguese]. Gestão da Produção. 15(1): 73-87.

Wakefield, K. L and Blodgett, J. G. (1996). The effect of the servicescape on custormers` behavioral intentions in leisure service settings. Journal of Services Marketing 10 (6): 45-61.

Wakefield, K.L. and Blodgett, J.G. (1999). Customer response to intangible and tangible service factors. Psychology and Marketing 16 (1): 51–68.

Appendix A. Questionnaire items

Construct	Measurement items
Reliability	1. The restaurant carries out the service with the promised time.
	2. When you have a problem, the restaurant shows a sincere interest to solve it.
	3. The restaurant carries out the right service for the first time.
	4. The restaurant registers the orders and the bills with no errors.
	5. The restaurant presents in its menu the correct information.
Responsiveness	6. The restaurant's employees say exactly in how much time the services will be performed.
	7. The restaurant's employees serve quickly.
	8. The restaurant's employees are always willing to help you.
	9. The restaurant's employees are never busy to fulfill your requests.
Assurance	10. The employees' behavior transmits liability to the customers.
	11. You feel safe with the food and services rendered by the restaurant.
	12. The restaurant's employees are nice with you.
	13. The restaurant's employees have knowledge to answer your questions.
Empathy	14. The restaurant gives you individual attention.
	15. The opening hours of the restaurant are convenient to the consumer.
	16. The restaurant has employees that provide you personalized attention.
	17. The restaurant has the best interest to serve you.
	18. The restaurant's employees understand your specific needs.
Product Quality	19. The quality of the food is visually attractive.
	20. The restaurant offers healthy options.
	21. The restaurant serves a tasty food.
	22. The restaurant offers fresh food.
Ambient Conditions	23. The light level of the restaurant is suitable.
	24. The temperature in this restaurant is comfortable.
	25. The smell in the restaurant is nice.
	26. The background music turns the restaurant into a nice place.
Facility Cleanliness	27. This restaurant keeps the restrooms cleaned.
	28. This restaurant keeps the kitchen cleaned.
	29. This restaurant keeps the entrances and exits cleaned.
	30. In general, this restaurant is kept cleaned.
Facility Aesthetics & Premises	31. The facilities design makes the restaurant attractive.
	32. The decoration of the restaurant is attractive.
	33. The colors used create a friendly environment
	34. Furniture (table, chair) are of quality.
Layout	35. In this restaurant, in the corridor between the tables, there is enough space to move easily.
	36. The signaling of the environment in this restaurant offers suitable orientation.
	37. It is easy to walk in the restaurant and to find what we are looking for.
	38. The number of tables makes it difficult to walk in this restaurant.
Eletronic Equipment & Displays	39. The equipments (TV, CD, and DVD) make this restaurant interesting.
	40. The equipments (TV, CD, and DVD) add "emotion" to the place.
	41. The equipments (TV, CD, and DVD) contribute to the entertainment.
	42. This restaurant has quality in the equipments (TV, CD, and DVD).
Seating Comfort	43. The chair of this restaurant allows me to seat in a comfortable distance.
	44. The seats of this restaurant are comfortable.
	45. It is easy to come in and out from your seats in this restaurant.
Service Staff	46. The employees are well dressed.
	47. The employees make me feel good.
	48. A suitable number of employees make me feel well served.
Table Settings	49. Glasses, dishes and cutlery are of quality.
	50. Table cloth and handkerchief are attractive.
Environmental Actions	51. Control of generated waste (example, selective collection).
	52. Waste control equipments (Light and water sensors).
	53. Information disclosure related to environmental issues.