

# Review of Foodservice Service Quality Scales to Evaluate Customers' Perception and Satisfaction

Melo C<sup>1</sup>, Medeiros D<sup>2</sup>

**Abstract** Most people are choosing to have meal out, not just for food but to have a good time. For this reason, in a competitive environment, restaurants need increasingly to move toward out-of-the-box experiences for their consumer and quickly erase friction in a dining moment, and then it is crucial evaluating the quality of food and service continuously and figuring out what restaurant can do different and better. Based on that, the proposal of this work is reviewing scales (i.e. DINESERV, TANGSERV, DINESCAPE) used to evaluate customers' perception of service quality by examining the quality dimensions, service quality attributes, types of restaurant and research methodology on previous studies. It is an exploratory-qualitative study and researches were carried out using Scopus and Web of Science databases to rise those main service quality scales. This paper suggests a multidimensional service quality framework composed by nine dimension – place, accessibility, food quality, beverage quality, service quality, employee, environmental oriented, tech-oriented, and social interaction. In addition, this study aims to provide insights of way to evaluate the service quality in foodservice and to help managers to explore service quality attributes in order to highly satisfy customers in a service encounters.

**Keywords:** Foodservice, Service Quality, Scales, Restaurant, Satisfaction.

## 1 Introduction

The restaurant industry has allowed customers to have meal away from home and it has been an important part in their manner of living. However, a large number of dining places has intensified competition into this sector (Kincaid *et al.*, 2010; Bae *et al.*, 2018; Richardson *et al.*, 2019). Therefore, the concern for service quality grows once a superior service promotes vast benefits to organization (Asubonteng *et al.*, 1996; Samen *et al.*, 2013; Gregoire, 2016) and it is important for success of a restaurant.

Considering the current relevance on service quality into foodservice industry and many works available in literature, a review comparing models of service quality measurement is still necessary to enrich literature in this field. Based on that, this study contributes:

1. To identify models of service quality measurement (i.e. DINESERV, TANGSERV, and DINSCAPE) applied in foodservice industry.
2. To show and compare the differences and similarities between foodservice quality evaluation.
3. To provide an overall scale from combined attributes and dimensions considered by those different models.

This study can help academics and professionals of restaurant industry by providing a review of restaurant service quality scales and a new instrument being helpful to promote an out-of-box experience to customers and increasing their return and behavioral intentions.

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<sup>1</sup>Camila Corrêa de Melo (e-mail: camila.correamelo@ufpe.com)

Dpto. of Industrial Engineering. Federal University of Pernambuco. Av. Arquitetura S/N, 50740-550, Brazil.

<sup>2</sup>Denise Dumke de Medeiros (e-mail: denise.medeiros@ufpe.br)

Dpto. of Industrial Engineering. Federal University of Pernambuco. Av. Arquitetura S/N, 50740-550, Brazil.

The paper is organized as follow: first, we introduce the relevance of service quality in restaurants and the contribution of this study to literature. In the second section, the article brings a review in literature of main concepts relate to foodservice and to measurement models of service quality in dining places. In the third part, we present a discussion and propose a 9-dimensions instrument. Finally, we conclude our study by summering the past discussions and present limitation of the paper and future works.

## 2 Foodservice Industry

The foodservice industry “is defined in its broadest sense to mean all establishments where food is regularly served outside the home” including a broad range of restaurants, schools, hospital, hotel food and beverage, convenience stores, supermarkets, service delis, coffee shops, cruise lines, child care, and so on (Palacio and Theis, 2015; Gregoire, 2016).

A restaurant is a “separate or front-of-the-house kitchen fully enclosed guest seating area that include a server or ordering station” (Manask and Schechter, 2008). The dining market may be classified into many categories: quick service, fast casual, midscale, upscale (Katsigris and Thomas, 2009).

Additionally, Dahamer and Kahl (2000) consider a continuum to classify those types of establishment: one end is restaurants with less service, no cover or basic tablecloth, quick speed, food prepared fast, and simply; other side of continuum is places with fancy surrounding, low pace, silver cutlery and crystal glasses, and well-prepared and good presentation foods and beverage.

## 3 Service Quality

Service quality is an important element in a competitive environment. Hernon *et al.* (2015) say that service quality “is multidimensional”, considering two important dimension: content that is related to visit reason (i.e. eat a meal, have fun with friends), and context which is associated with the experience itself (i.e. interaction with people’s service, comfort of place’s atmosphere).

It is a complex concept because it involves tangible and intangible aspects (Kivela *et al.*, 1999; Hernon *et al.*, 2015). According to Grönroos (1984) services demand many interactions between buyer and sellers through production-consumption process. Based on that, the service quality requires a following up of the businesses’ overall system, watching beside service production as well as delivery process (Parasuraman *et al.*, 1985; Schneider and White, 2003).

Service quality is depended of two variable: expected service and perceived service (Grönroos, 1984; Parasuraman *et al.*, 1985; Gummesson *et al.*, 2015) Also, Parasuraman *et al.* (1985) highlights that because of lack of a tangible evidences to evaluate quality in service, customers are influenced by cues. Further, the essential of service quality is to make customers recognize hospitality, caring, well-being and reliability of a service (Chen *et al.*, 2015)

## 4 Models of Service Quality Measurement to Restaurant

### 4.1 SERVQUAL

SERVQUAL is the most popular and widely used scale to measure service quality (Demir *et al.*, 2018). Parasuraman *et al.* (1985) first introduced the model with 10 dimensions which were reduced to five, namely empathy, tangibility, responsiveness, reliability and assurance. This scale contains 22 pairs of items – 22 perception items and 22 expectation items – and the service quality is measured by calculating the differences between the expectation and perception of the service quality, so it is known as gap model

(Parasuraman *et al.*, 1985; Buttle, 1996; Peitzika *et al.*, 2020). Through gap analysis, a negative gap indicates that the actual service quality is perceived as poor and it need to be improved; and a positive gap shows that a higher service quality has been delivered to customer and exceeded customers' expectation (Brown and Swartz, 1989).

There are many different scales to measure service quality in restaurant based on modified SERVQUAL such as DINESERV, TANGSERV and DINESCAPE scale. Each ones established a framework and included factors are related to specific characteristics of restaurant sector. Following on this section, each measurement of service quality applied to restaurant will be described as well as studies will be presented to exemplify their application in different approaches.

## **4.2 DINESERV**

The SERVQUAL was modified to the restaurant industry resulting on DINESERV instrument. This model contains 29-items, which were initially measured on a sevenpoint Likert-type scale, and considers the five dimensions of service – reliability, assurance, responsiveness, tangible and empathy (Stevens *et al.*, 1995). It uses in measuring just the performance of restaurant to guide the needed improvements (Adeinat, 2019).

Numerous studies can be found in literature. (Bougoure and Neu, 2010) apply on fast food industry and noticed that reliability and tangible dimensions are important to service provided to customers. Keith and Simmers (2011) did a different application with the instrument by assessing the restaurant comment cards and matching the comments into all five DINESERV dimension.

Other interesting study was done by Kou *et al.* (2016) comparing differences on perception of revisiting and first time customers, and found that people visiting the place for the first time was influenced by responsiveness dimension and those returners consider tangible aspect such as dining atmosphere more important. Kim and Choi (2019) also did compare experiences perceptions between two different groups in restaurant using DINESERV - staff and customers at a free buffet restaurant.

## **4.3 TANGSERV**

Tangible factors seemed to be underestimate by SERVQUAL and DINESERV. The TANGSERV scale was developed for measuring aspects that influences tangible quality in a food industry, including factor such as light, music and temperature, seating arrangement and food presentation; it initially considered 35 items grouped into seven dimensions, and then it was reduced to 13 itens classified into 3 dimensions – layout/design, product/service and ambiance/social. This model considers collection of data from responds' perception (Raajpoot, 2002)

Not many studies appear applying TANGSERV directly, most of them evaluate tangible using others scale (Lee *et al.*, 2016). Kincaid *et al.* (2010) applied the TANGSERV scale to a casual restaurant to examine which tangible attribute affect guest's behavior intentions and satisfaction about the overall experience and concluded that food, service and accessibility most influence the tangible quality experience.

## **4.4 DINESCAPE**

DINESCAPE is a multiple-item scale used to assess physical and personal factor in a dining environment at a fancy restaurant formed by 21 items into six factor – facility aesthetics, ambiance, lighting, table setting, layout, and service staff, and it collects data about performance of a service encounter (Ryun and Jang, 2008).

A study realized by Mahalingam *et al.* (2016) show an application of this scale to verify which one DINESCAPE factor most influences a revisiting customer in her or his favorite restaurant and they figured out that lighting, physical aesthetics and service staff play an important role in a dining experience. Alternatively, Taylor and Dipietro (2017) affirmed caution about using this scale and they proposed modified to six items into two factors.

#### 4.5 Others Scales

Apart from previous scale, there are others service quality measurement models that approach a specific group of attributes related to foodservice industry. As an important role in a service environment, CPS propose to evaluate perceived cleanliness and how it influences the overall service experience; it is formed by 12 items into 3 dimension (Shapoval *et al.*, 2018).

Cleanliness had already been explored on Barber and Scarcelli (2010) and Troung *et al.* (2017) considering as a critical element of the service experience. Still related to this attribute, sanitation was another factor identified in (Almanza *et al.*, 2016) and it was analyzed by five-dimension instrument and its impact on evaluating customer's perception in a restaurant service.

Harrington *et al.* (2015) explore the relationship among music, impact on guest's atmosphere perception and intention to return and they proposed MUSICSCAPE model.

Environmental attributes were investigated by two instruments: ECOSERVE is a six-dimension instrument to evaluate perceived service quality in restaurant with green practices (Shapoval *et al.*, 2018), and GRSERV scale is a model applied to green restaurants that measuring service quality perception throughout 28-items and seven dimensions (Chen *et al.*, 2015).

Finally, BEVQUAL is an instrument to appraise service quality in beverage, covered in six dimensions – ambiance, atmosphere, service quality, pricing, beverage quality and location – into 23 items (Bujisic *et al.*, 2018).

## 5 Discussion

Each scale investigates service quality by a different dimension. Although DINESERV has a huge application in foodservice industry, it lacks of studying food quality dimension and its impact on guest's perceptions. Even though food is not the main reason for why people go to restaurant, it still has a considerable importance on the experience, so this model fails to analyze this factor (Ha and Jang, 2010). Most of statements on DINESERV are related to personal interaction between server and guest and tangible factors of a service process. A study presented by Hansen (2014) filled this gap by including a measure to meal experience.

Related to DINESCAPE and TANGSERV, they are two-quality-service measurements, which emphasize tangible aspects on a service such as atmosphere, decoration of establishment, and staff presentation. Those scales do not treat service by personal relationship, being a disadvantage if compared with DINESERV scale. Additionally, while TANGSERV brings food aspects, DINESCAPE does not investigate about it. Furthermore, all of dimension of DINESCAPE are included on TANGESERV scale, although it highlights the attribute of lighting, considering an independent dimension.

As noticed, many attributes are considered to evaluate service quality in restaurant fields, and there are no consensus about each one should be prioritized (Bougoure and Neu, 2010).

Therefore, based on service quality instruments showed previously, we propose to combine TANGESERV and DINESERV scales to create an original quality service measurement covering attributes of food, environment and service. Further, others features could be added to the model to incorporate evaluation of current trends on restaurant fields such as alternative foods (i.e. vegans, dietary restriction, and children), accessibility (i.e. children friendly, and disabled people), sustainability (i.e. eco-friendly, volunteer activities), and technological interaction (i.e. online order, online page, reviews). Another

particularity of this scale is treating beverage as a dimension separated of food and validate how much this dimension is important in a restaurant experience.

A framework proposed distributes them into nine dimensions in order to overall evaluate the perceived service quality. It included tangibility, which contains ambience and cleanliness of physical environment; accessibility related to location and different groups of people; food quality that covers attributes of food and alternative foods; beverage; service valued by reliability and assurance; employee considering empathy, responsiveness and appearance; environmental-oriented; technological-oriented; and social interaction.

Social interaction was not considered previously as an attribute because it goes behind restaurant boundaries, but it is an important factor that might could affect a perceived quality of a restaurant's service. Then, this measurement model not just considers basic attributes as food, service and tangibles; it also explores dimensions such as employees, sustainability, friendly-tech and beverage separately from the basics. Each dimension considered are initial equal important for ensuring a quality services to customers currently.

As a result, the restaurant service quality scale frequently used in the past can no longer assess new trends of foodservice industry such as sustainability and technological interaction; beverage and social interaction are overlooked; and staff are most investigated as an attribute of service dimension. For those reasons, we propose a new tool that beside investigates essential attributes that are needed to a food service being delivered, adding dimensions that covered the gaps of service quality measurements mentioned on previous sections.

The framework suggested was defined using nine dimensions as described following. And we consider a group of items to be judged on each dimension, and Table 1 summarizes them.

– Physical Environment: judgment about the service environment such as temperature, light and design; also consider cleanliness and entertainment (Raajpoot, 2002; Ryu and Jang, 2008, Vos *et al.*, 2019). It implies on willingness and enjoyment of consumers during an encounter.

– Accessibility: practices to deliver access to-all such as children and seniors. Accessible facilities promote wellness (Dolbow and Figoni, 2015) and having the care of single customer.

– Food quality: judgment about the food items such as taste and presentation of meals, variety of meal on menu, and alternative foods (Ryun *et al.*, 2012).

– Beverage: judgment about the drink items serve including temperature, presentation and variety of menu (Bujisic *et al.*, 2018).

– Service: ability to performance as promised, pace and speed of service (Monica Hu *et al.*, 2009), prompt handling of complaints and reservation, and convenient operation hour (Meimei *et al.*, 2010; Hsiao *et al.*, 2016). It shows to customers how much the service is engaged with operational procedures.

– Employee: factors related to appearance, competences and behavior of employees - willingness to help customers and personal treatment (Truong *et al.*, 2017; Yrjölä *et al.*, 2019). Those items allow customers feel pleasure with individual way that are treated.

– Environmental-oriented: commitment to green practices including water and energy efficiency and conservation, recycling program, eco-atmosphere, and waste reduction. Environmentally friendly services do effect on image of a restaurant and increase customers' loyalty and satisfaction (Kwok *et al.*, 2016; Cantele and Cassia, 2020; Myung and Hall, 2020).

– Tech-oriented: use of technologies to make restaurants more innovative (i.e digital menu) (Yim and Yoo, 2020) and help to maintain information updated on online platforms (i.e. online payment, and online order). Making a restaurant tech friendly was identified as a new trend and it can help to deliver a convenient experience to customers, although Mhlanga (2020) says that a good meal is tech-free.

– Social Interaction: effects of customers' interaction during service including customer dress, too-loud conversation (Song and Noone, 2017). It helps to make customers feel comfortable with a dinner experience.

**Table 1.** Dimension and attributes of quality service

Dimension	Attributes
Physical Environment	Cleanliness; atmosphere
Accessibility	Dining hall size; seating arrangement
Food Quality	Item variety; portion size; food restriction; food presentation
Beverage Quality	Item variety; temperature
Service	Speed; waiting time
Employee	Appearance; empathy; security
Environmental-oriented	Green practices; sustainable furniture
Tech-oriented	Technologies
Social Interaction	Crowding; noise

## 6 Conclusion

This conceptual paper has provided a discussion about scales on literature to assess perceived service quality of a restaurant experience such as DINESERV, TANGSERV and DINESCAPE. Additionally, it proposed a framework, which englobed main dimensions brought from previous studies – tangible, service and food quality - and added others – beverage, employee, environmental-orientated and tech-orientated – that was explored individually by researchers.

It hopes creating a general scale that could be applied to different restaurants styles to understand their particularities on service quality to customers and it could be possible to learn something from each other, in order to significantly improve and enhance the service quality of restaurant sector. It is intended that the proposal will fulfill the gaps mentioned from previous scales and offer a better understanding of the service quality of a meal encounter. Therefore, it helps for identification of components of service quality and then a design service accordingly creating loyal clientele.

Beside that the model investigates the impacts of restaurants' quality service attributes on customers' satisfaction and loyalty, their findings would have implications on three dimensions of sustainability: economic, social and environment. Firstly, understanding what service's weaknesses are contributes to highlight quality improvements that would be done and better outcomes can be achieved, and then available resources – financial, natural and human – can be allocated in an efficiently possible way. Secondly, as a delivery performance is aligned with consumers' desires, it increases confidence and creates trust on the foodservice sector and willingness to pay more, and therefore more job opportunities would be created, which collaborate to attract investments and improve the service economy. Finally, this study encourages the commitment to environmental sustainable practices, as it has been a new trend on the foodservice sector and those eco-friendly attributes have called attention of consumers.

This research supports the notion that many attributes are used to evaluate service encounters over different types of dining places. Clearly, it is an exploratory study and needs further validation and reliability analysis about the appropriateness of the dimensions and sub-dimensions identified to be applied as a general tool for measuring perceived service quality on the foodservice industry. It is recommended as the next steps applying the model on one of the commercial sectors of the foodservice industry such as pizzeria or restaurants that serve a full service. Only then, can a full understanding be achieved.

Therefore, this paper adds to the literature a multidimensional instrument to overall assess the service quality in a restaurant behind those elementary dimensions (food, service and environment), which have been considered important to the customer during a dining experience.



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