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Abstract

The restaurant market is becoming more competitive, and businesses are challenged to differentiate themselves in this sector in terms of quality of services. This research aimed to identify the specific indicators for measuring the quality of restaurant service in Brazil. Based on a quantitative paradigm, we adopted a user-generated content analysis with a sample of 1,143,631 customer reviews from 35,611 restaurants in seven Brazilian cities available on the TripAdvisor platform. We collected and registered the data in text and analyzed the results with the support of T-LAB software. Moreover, we adopted TOURQUAL Protocol (Mondo, 2014) to identify the main requirements for quality. Also, we gathered the customers points of view through reviews made on a specialized website and organized them into groups. Findings: The results showed the leading categories identified as requirements for the customers were accessibility or location, service, opening hours, infrastructure, price, quality of food, and having a variety of food options. The finding provides managers with empirical evidence of the quality drivers for Brazilian clients and sheds light on opportunities to enhance quality service. This research demonstrated its originality as the first to adopt TOURQUAL quality indicators in a large country sample with continental geographical dimensions.

Keywords

quality of service, food and beverage, quality protocol, TripAdvisor

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A User-Generated Content Analysis on the Quality of Restaurants Using the TOURQUAL Model

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Abstract

The restaurant market is becoming more competitive, and businesses are challenged to differentiate themselves in this sector in terms of quality of services. This research aimed to identify the specific indicators for measuring the quality of restaurant service in Brazil. Based on a quantitative paradigm, we adopted a user-generated content analysis with a sample of 1,143,631 customer reviews from 35,611 restaurants in seven Brazilian cities available on the TripAdvisor platform. We collected and registered the data in text and analyzed the results with the support of T-LAB software. Moreover, we adopted TOURQUAL Protocol (Mondo, 2014) to identify the main requirements for quality. Also, we gathered the customers points of view through reviews made on a specialized website and organized them into groups. Findings: The results showed the leading categories identified as requirements for the customers were accessibility or location, service, opening hours, infrastructure, price, quality of food, and having a variety of food options. The finding provides managers with empirical evidence of the quality drivers for Brazilian clients and sheds light on opportunities to enhance quality service. This research demonstrated its originality as the first to adopt TOURQUAL quality indicators in a large country sample with continental geographical dimensions.

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Introduction

Food service is a vital force in both the Brazilian and worldwide economies. Brazilian food and beverage industry represent 10.6% of the Gross Domestic Product in Brazil (Brazilian Food Industry Association, n.d.) and the most significant slice of the Gross Domestic Product of the Brazilian service sector, which characterizes 73% of the sector (Brazilian Institute of Geography

and Statistics [IBGE], 2016) with more than 250,000 food and beverage businesses and an annual income flow of almost \$31 billion dollars and employing 1.8 million people. (The monetary value is a 2016 readjustment and dollar conversion for 2021 based on IBGE data correction from the Getúlio Vargas Foundation.) Food service represents approximately 18% of the service sector in Brazil (IBGE, 2016). In Europe, the sector is valued at 426 billion Euros (Statista, 2020a) and projected to hit \$1.3 trillion dollars by 2030 in the U.S. (Kelso, 2019). Therefore, managing the quality of restaurant service is crucial to improve results and strengthen any country's economy. Quality of service has gained attention among researchers (Pham & Nguyen, 2019) as a central area of study since the 1980s (Grönroos, 1984; Oliver, 1980). It has also grown as a research area with the creation of the SERVQUAL model (Parasuraman et al., 1985, 1988), followed by the SERVPERF model (Cronin Jr & Taylor, 1992), and by other researchers such as Bolton and Drew (1991), Brady and Cronin Jr (2001), and many others.

In the Brazilian context, Gimenes et al. (2012) proposed a methodology based on the four categories of the experience economy (Pine II & Gilmore, 1998) to evaluate experiences in the food industry. They produced an analytical tool that adds depth to this subject and improves strategic decision making (Yu & Egger, 2021). The most recent model developed to measure the quality of tourism services is the TOURQUAL model (Mondo & Fiates, 2017). The authors designed an unprecedented and specific model based on the real perception of tourists of the quality of tourism equipment. Due to the economic importance of this sector and the constant need to evaluate performance and provide better services (Timoshenko & Hauser, 2019), the research problem in this study is *Which indicators are used by customers of Brazilian restaurants to evaluate their perception of the quality of service?* The objective is to identify the specific indicators to measure restaurant service quality in Brazil. The authors applied the TOURQUAL framework (Mondo, 2014), an empirically proven application and tool to assess service quality (Mondo, 2022; Mondo & Fiates, 2017; Mondo et al., 2016).

The structure of the study begins with a theoretical discussion about quality service models, user-generated content, and TripAdvisor. Next, the methodology used in the study is described, followed by the presentation and analysis of the data. Finally, the authors' considerations about the study are discussed.

Literature Review

Quality Service Models

The concept of service quality has a variety of definitions in the literature. Lehtinen and Lehtinen (1982) defined service quality in three dimensions: physical, interactive, and corporate. Grönroos (1984) argued that the perceived quality of service results from an evaluation process, where the consumer compares their expectations concerning the service they perceive to have received. Parasuraman et al. (1985) stated the perception of service quality arises from comparing the customer's expectations with the service's actual performance. Lee and Chen (2006) mentioned that evaluating service quality was more difficult than evaluating product quality, suggesting a high degree of complexity. When it comes to restaurant service and its quality, similarities were found in their intangible services. In other words, the intangible characteristics of services cannot be stored, and that quality is subjective as it depends on the perception of value and satisfaction of each person. Evaluating a service's quality is related to what the clients perceive of that service

(Grönroos, 1984). It requires the participation of the customer, the service provided, and the experience lived and will result in a positive or negative evaluation (Coelho et al., 2018). The criterion of quality evaluation will always be subjective—each person will judge according to their values, expectations, demands, context, state of mind, and emotions. (Chark et al., 2020). Modeling tools to obtain objectivity from perceptions in this area has been an academic challenge (Brady & Cronin, Jr., 2001; Cronin, Jr. & Taylor, 1994; Mondo, 2014; Mondo & Fiates, 2017; Parasuraman et al., 1984).

Currently, many different models for measuring service quality over the past few decades have become more specific according to the characteristics of certain types of services. The first study with major relevance in the literature of quality of service in restaurants was DINESERV (Stevens et al., 1995), an adaptation of SERVQUAL. After the creation of DINESERV, many studies used it as a tool or adapted it to measure service quality (Kim et al., 2003; Kim et al., 2009; Markovic et al., 2010). Chen et al. (2013) developed a model of service quality evaluation in green restaurants.

User-Generated Content and TripAdvisor

Monitoring post-purchase, or post-consumption, behavior has great importance for management and marketing professionals (Kotler & Armstrong, 2008). This behavior became more manageable with the use of Information and Communication Technologies (Buhalis et al., 2019). It enables greater agility to monitor customer feedback or user-generated content (UGC). Also, managers might solve problems that resulted from service failures (Ekiz, 2019) and improve their products or services (Ayeh et al., 2013; Buhalis & Law, 2008; Lapolli & Gauthier, 2008; Lu & Stepchenkova, 2015). The feedback expressed by customers through UGC involves other potential consumers and influences final decisions of other users (Ukpabi & Karjaluoto, 2018).

The customer becomes their own disseminator of a particular enterprise, influencing the perception of quality and positioning of specific services evaluated (Buhalis & Foerste, 2015). In addition, the customer also produces information and suggestions for improvement and product diversification, besides identifying possible weak or negative points that professionals can solve or minimize—all contributing to fostering the loyalty of these consumers (Lapolli & Gauthier, 2008). Thus, application and platforms like TripAdvisor are handy for both customers and managers since they are mechanisms that promote partnership and loyalty (Lu & Stepchenkova, 2015). In short, the use of online reviews is growing exponentially, and its use for management purposes is seen as a positive and smart action (Inversini & Masiero, 2014; Silva et al., 2018).

Although only a small portion of the population manages content (Huang et al., 2019; Van Dijck, 2009), the scene of constant technological developments (Leung, 2019) allowed online reviews to become the main channel in the search for recommendations (Huang et al., 2020); and in many cases, even generating information overload (Sun et al., 2019). In the context of tourism and hospitality, data shows 86% of the public check the platform looking for accommodation while 89% search for activities and restaurants (TripAdvisor, n.d.). Research in this area demonstrated a myriad of possibilities, but they are not restricted to the following themes: quality of service, image, the reputation of destination, experiences and behavior, and mobility patterns, increased knowledge related to the destination, perception of price fairness, accessibility, and many others (Antonio et al., 2020; Lu & Stepchenkova, 2015; Viana et al., 2020).

Methods

Against this backdrop, this research presents a UGC analysis, considered an effective way to understand customer feelings (Barreda & Bilgihan, 2013). These feelings are usually expressed in words written on a digital platform. The Internet serves as the contact point between the brand and its consumers (Buhalis et al., 2019). The platform is a publicly accessible channel (as opposed to physical interactions between brands and customers). This provides outstanding visibility of the UGC due to the propagation and interactivity allowed by digital contact points (Edelman, 2010). To increase the credibility of what is disseminated on the Internet, stakeholders should provide for greater interaction on the Internet for satisfied visitors by sharing photographic images, videos, and texts. This UGC would be more reliable than the promotional material edited by the destination. (Perinotto & Soares, 2020). The authors used one specific software created to mine the data in Ruby Language and collected data from the TripAdvisor website using a non-probabilistic sample (McDaniel & Gates, 2004). The following information was available: the reviewed restaurant, the city of the attraction, the title of the review, and the review itself.

The authors selected TripAdvisor, an important platform popular with tourists (Buhalis, 2019) for travel and attraction reviews. TripAdvisor focuses on online travel research and enables users to plan and experience a perfect trip. TripAdvisor is a research platform that presents traveler reviews and opinions on destinations, lodging facilities, restaurants, and activities worldwide (TripAdvisor, 2019) and can be accessed in 48 countries in 28 languages (Statista, 2020b). TripAdvisor was the only site used because at the time of collection, it was the platform with the most comments. The selected sample includes an analysis of units, online reviews of 35,611 restaurants in cities from the five Brazilian regions (Belém—North region, Brasília—Midwest region, Curitiba—South region, Florianópolis—South region, Recife Northeast region, Rio de Janeiro—Southwest region, and São Paulo – Southwest region). This choice considered the inclusion of cities from different regions in Brazil, the main tourist destinations in the country, and the gastronomic characteristics of each of them. Since each region has its own “cultural variations, there is an obvious deficiency of behavior homogeneity” (Oz et al., 2016, p. 39) between them, the analysis of the main destinations in all the five regions provides an optimal perspective of quality service in Brazil.

The sample consisted of 1,143,631 reviews between 2011 and 2016 from restaurants in the selected cities. These restaurants represent more than 5% of restaurants in Brazil (Brazilian Association of Bars and Restaurants, 2019), which produced an adequate and representative number of consumer comments. In addition, reviews from different restaurant segments were collected (typical, international, fast food, bars, etc.). After data collection, the data were tabulated and analyzed qualitatively through content analysis using the T-LAB software, a software that provides “linguistic, statistical and graphical tools for text analysis” (Lancia, 2022, p. 2).

The authors applied Sammon’s method (Mazanec, 2010; Sammon, 1969), word correspondence analysis, and word cluster analysis through the T-LAB software. Sammon mapping is an algorithm that maps a high dimensional space to a smaller dimension space, seeking to preserve the structure of distances between points in the space of high dimension in the smaller projection. Correspondence analysis highlights the similarities and differences between the units in the context. More precisely, the authors applied a test to identify variables, and grouped elementary contexts of words, such as co-occurrence of values and tables for verification of frequency of values. The analysis generated graphs representing the relations between subgroups (body of the

text and the lexical units that constitute them). Depending on the case, the types of available graphs showed the relationships between the active variables and lemmas (keywords of the textual group). The study also used the Ward method (i.e., putting the variables in a hierarchy based on their frequency) to analyze clustering. Content analysis was then employed to identify the terms related to the definitions of quality. The study followed Kozinets (2007) indication, organizing the content into categories and confronting the attributes developed by Mondo and Fiates (2017). These attributes, which form the TOURQUAL model, are presented in Table 1.

Table 1. Attributes Form the TOURQUAL Model

Attribute	
Access and parking	Aesthetics
Waiting for service	Price
Ease of purchase	Infrastructure
Working hours	Cleanliness
Temperature	Bathroom cleanliness
Acoustics	Cargo capacity
Comfort	Variety of activities
Attention	Variety of food options
Service	Drink menu
Technical knowledge	Menu
Learning experience	Food Quality

Source: Mondo and Fiates (2017)

The TOURQUAL protocol has been used in the evaluation of tourist attractions, destinations, and events in Brazil with good academic and market acceptance although it is still a recent model (Cruz & Dilao, 2019; Khawash & Baksi, 2017; Mondo & Fiates 2016; Mondo et al., 2020). The TOURQUAL protocol was derived from a meticulous analysis of two bibliometric surveys in two databases (i.e., Ebsco, Scielo). Mondo (2014) verified that no specific model existed to evaluate service quality in tourist attractions. The author developed a preliminary model from theoretical research with 35 indicators and tested twice. First, TripAdvisor was used to maintain, create, or delete the preliminary model's indicators. This procedure led to a total of 26 indicators which formed the TOURQUAL final model. The model was then empirically tested in field research and validated through qualitative and quantitative analysis (Mondo & Fiates, 2017). Ever since the protocol has been used to evaluate tourist attractions, destinations, and events in Brazil and abroad. Our data consisted in 1,143,631 reviews from seven Brazilian cities from Belém, Brasília, Curitiba, Florianópolis, Recife, Rio de Janeiro, and São Paulo. Table 2 shows the compiled results.

Table 2. Compiled Results of Reviews, Restaurants, and Average Evaluation Scores From Seven Brazilian Cities

City	Number of Review	Number of Restaurant	Evaluation Average
Curitiba	122,218	4,530	42.34
Florianópolis	75,549	2,400	42.30
Brasília	118,280	3,414	41.50
Rio de Janeiro	281,543	7,299	40.93
São Paulo	451,038	13,997	41.51
Belém	27,548	1,181	42.79
Recife	67,755	2,790	41.97

To verify whether certain indicators were more frequent in specific restaurants, the study divided the establishments into five categories (a la carte, buffet, fast food, bars, and others). Tests were performed on the group of reviews formed by the restaurants by city and category. Thus, 35 tests (7 cities x 5 categories) were generated to create the graphs for the analysis. The TOURQUAL

model quality attributes were compared to the test results, and the frequency of the attributes was verified.

Findings

Analysis of the Quality Attributes

The most frequent qualities that emerged from the reviews follow: accessibility or location, service, opening hours, infrastructure, price, food quality, and variety of food options. These attributes were identified in all the restaurant categories and cities.

The indicator *accessibility or location* was identified in all the categories and accounts for elements such as parking, access roads, and neighborhood. Access and location as attributes in restaurants have already been studied by Stevens et al. (1995) in the model DINESERV, specifically in the dimension of tangible aspects (items *parking* and *external facilities*); and by Trujillo and Vera (2007) in the EMCASER model (items *parking* and *restaurant location*). Park and Kim (2007) concluded that location, which greatly influences a restaurant's operation and business, has an important correlation with the success or failure of an establishment. Also, Pillsbury (1990) researched the location of restaurants in Atlanta United States, and stated that the accessibility, environment, and demographic characteristics were significant considerations regarding location. However, various perceptual, psychological, and spatial elements were also noteworthy for certain types of restaurants and situations. Prayag et al. (2012) argued that restaurants are usually clustered near each other, creating a gastronomic region. Tzeng et al. (2002) analyzed the best location for restaurant deployment in Taipei. Numerous studies have focused on the location and accessibility of restaurants precisely because they considered a relevant indicator within the customer quality perception. Our results support this idea by empirically presenting the larger sample of UGC in Brazilian restaurants.

Service was another indicator that obtained 100% significant occurrence then analyzing the data collected through reviews. According to the T-LAB (n.d.) software, a significant occurrence is any element of the data that are displayed in the graphs and tables, i.e., correspond to important elements perceived in all of the cities. A classic quality indicator, since the studies of Oliver (1980), Grönroos (1984) and Parasuraman et al. (1985), the service quality has been, to date, the main item within the service business. The SERVQUAL model (Parasuraman et al. 1985; 1988) is considered the precursor and supports the importance of this item, with three of its five dimensions related to service (reliability, promptness, and empathy). The DINESERV model (Stevens et al., 1995) followed the SERVQUAL logic with empathy and communication dimensions. GRSERV (an adaptation of DINESERV for green restaurants) by Chen et al. (2015) also presented indicators related to the service's human element. Mathe and Slevitch (2013) argued that the atmosphere of employee involvement and the construction formed by power, information, rewards, and knowledge are related to the customer perception of quality. Southgate and Mondo (2017) also addressed their attention customer service when researching worker satisfaction in restaurants inside hotels. The *affection* element was noted by Lai (2015), who argued for the influence of the issue affection in the perception of service quality.

Another indicator with 100% significance in the sample was *opening hours*. Rao (2014) identified the most critical issue for customers as opening hours when investigating service quality

dimensions in restaurants in UdupiIndia. Because opening hours was one of the indicators in SERVQUAL, numerous studies that used the model in restaurant evaluations ended up using it (Heung et al., 2000; Kim & Kim, 2004). *Infrastructure* also achieved 100% occurrence in the five categories of restaurants in all cities surveyed. One of the infrastructure components in SERVQUAL is tangible aspects, created by Parasuraman et al. (1985) and adapted in other models such as DINESERV, GRSERV, and others.

Customer perception regarding *price or benefit* also occurred in each case, showing that price was a strong moderator of quality perception. Namin (2017) found that customer satisfaction can be improved through service quality, food quality, and money value. The subjective price perception has been one of the main components of the consumers' perceived quality of service (Kim et al., 2020). The *variety* of food options was identified with significance in the whole review groups researched as well. Therefore, restaurants that produced a suitable range of food options appeared as well as those rated by customers. A well-assembled menu (Filimonau & Krivcova, 2017) with several options and serving different tastes was the conclusion drawn from reviews regarding this indicator.

The last indicator found in all the categories was *food quality*. The overall quality of food significantly affected customer satisfaction and behavioral intentions (Cao & Kim, 2014; Namkung & Jang, 2007; Saulais et al., 2019). The data showed the second most important segment included comfort, menu, drinks menu, and waiting for service. These attributes did not reach 100% occurrence in the restaurants researched for this study but were in most reviews. Table 3 presents the data for this segment.

Table 3. Second, Third, and Fourth Segment Indicators of Importance

Attribute	Frequency in Review (%)
Second Segment of Importance	
Comfort	97.14
Menu	94.28
Drink menu	85.71
Waiting for service	82.85
Third Segment of Importance	
Ease of Purchase	68.57
Attention	54.28
Aesthetics	48.57
Fourth Segment of Importance	
Variety of activities	37.14
Carrying capacity	34.28
Temperature / acoustics	14.28
Cleanliness	11.43
Technical knowledge	2.86
Learning	2.86

The comfort indicator obtained almost 100% occurrence in the different types of restaurants in different cities. Thermal sensation and acoustics in restaurants were responsible for this result. Heat, cold, excessive noises, music, and other environmental characteristics formed the perception of customers. Menu had a 94.28% occurrence in customer reviews. The design of the menus reflected the concern of the restaurant managers in guiding the customer consumption experience. Numerous studies investigated the menu as an element of restaurant marketing (Romero & Biswas, 2016; Wansink & Love, 2014). In fact, the effect of the font in italics and the weight of the menu raise expectations regarding service quality, and that background colors do not influence as much

in terms of expectation (Magnini & Kim, 2016). The design, item description, and variety of options presented were also important elements and were considered predictors of customer satisfaction (Baiomy et al., 2017). Similarly, the drink menu had a significant rate of occurrence. Presented in 85.71% of occurrences, this indicator of the variety of beverages offered in the restaurant was considered relevant within quality management. Finishing this second segment of importance was the indicator waiting for service—the time customers wait to be seated, place their order, and the meal's arrival—present in 82.85% of occurrences. This is in line with extant literature (Ravandi & Jovanovic, 2019) and the authors of this study argue that restaurants should pay attention to this indicator.

Three attributes form the third segment (ease of purchase, attention shown by staff, and aesthetics). Table 3 shows the frequency of each indicator in the reviews. Ease of purchase involves the method of payment and getting the bill. The reviews verified that this indicator was present in 68.57% of the categories, whether regarding the payment methods (credit card, cash in different currencies, etc.) or how promptly the bill was brought to the customer. Albeit payment derived from easiness to purchase is being seen straightforward and efficient (Buhalis et al., 2019), the results here showed that indicator still needs careful consideration to understand its weight in consumer perspective. Attention from the restaurant staff was commented on in 54.28% of the occurrences. Closely related to service, this indicator was clearly perceived due to the significance in reviews that mention attention. Finally, Aesthetics and decoration was presented in 48.57% of the reviews. In Parasuraman et al. (1988), and Bitner's (1992) works, the service's tangible aspects and ambience influence quality perception. Pine II and Gilmore (1999) defended that aesthetic contemplation was one element of service experience. This indicator was also considered relevant within the aspect of the online reputation of restaurants.

The last block of results was formed by the attributes variety of activities, carrying capacity, temperature and acoustics, cleanliness, technical knowledge, and learning. Finally, within the attributes researched, it is not possible to identify a significant frequency of attributes related to accessibility for people with disabilities, service presentation, restrooms, weather, trust, entertainment, escapism, safety, signage, and technology. This does not mean these indicators were not part of the scope of quality assessment, only that within the tests and inferences conducted, the significance of these indicators was irrelevant compared to the significance of other indicators.

Conclusions

The restaurant market has continued to expand around the world in recent years. For tourism, restaurants are no longer considered a complementary facility. Instead, in many places they have become the main attraction of a destination. The importance of gastronomy has been recognized in travel destinations primarily based on documented tourism experiences. Excellence in customer service, especially when confirmed by well-respected publications such as the Michelin Guide, is an important way for a restaurant to differentiate itself from the market. This study presented results of an exhaustive search to identify the main requirements for measuring restaurant service quality in all regions of Brazil; and is believed to contain the largest sample of online reviews in tourism and hospitality, and in the business context.

This research showed that restaurants that cares about the global quality of service should focus on improving and maintaining excellence in accessibility and location, service, opening hours,

infrastructure, price, quality of food, and the variety of food options. These indicators appeared in 100% of the review groups. Managers need to pay attention to less frequent indicators, as well, including comfort, menu, drinks menu, and waiting for service. From the managerial perspective, the findings allow for understanding the need to evaluate periodically the perceived quality and satisfaction of the consumers. Managers must research customer opinions on specialized websites; implement continuous improvement, and control the main indicators exposed here, using specific proper tools created according to each restaurant's type of management and characteristic.

This study's main theoretical contribution advances the service quality theory in restaurants by developing quality indicators based on real experiences of consumers through content generated online. Differently from DINESERV (Knutson et al., 1996), which was an adaptation of SERVQUAL (Parasuraman et al., 1988)? Our analysis is grounded on a data-driven approach (i.e., a helpful method for exploratory purposes) previously used by Jackson (2016; but to circumvent the limitations of Jackson's research, this study applied TOURQUAL indicators as the lens of the data-driven analysis, thereby converging data and theory to enrich the analysis. The authors argue that online reviews can be data-driven, but "to assure that knowledge is acquired through an objective and unbiased process [...]. a classification framework must be first developed" (Law et al., 2019, p. 514).

Aligned with the data-driven analysis, an important-performance analysis comparison (Abreu-Novais et al., 2015) combined with UGC's primary data demonstrated the differences between the managers, *in loco* consumers, and the post-statements of consumers. This research launches new light on the fundamental nature of service quality studies by identifying potential quality indicators not measured in previous studies, but often used in consumer reviews. Frequently, the dynamics of service provision undergo changes and innovations that theory-driven studies may not accompany. Business survival requires investigating in real-time (Buhalis, 2019) online reviews, checking the quality services offered, and discovering new indicators arising, not only replicating existent indicators. Restaurants must also fully understand the behavior of tourists and properly design tools to measure the new reality; for example, the adoption of existing indicators and implementation of new ones for measuring safety and sanitation resulting from crises such as Covid-19. Since the number of comments analyzed was large, the set of indicators proposed here advances the service quality theory in restaurants by showing researchers and managers the real and effective quality performance indicators in the restaurant service. In further research, the authors suggested studies focusing on customer perception after consumption to progress in understanding operationalization - one of the main limitations of SERVQUAL and DINESERV - presented by Teas (1994), the ambiguity between expectation and perception, and many others. The research's originality lies in its use of TOURQUAL in the reality of restaurants. This study researches and analyzes over a million comments, contributes to theory, presents, and analyzes specific restaurant indicators, and innovates in the methodological question using TOURQUAL.

Limitations and Future Research

The authors recognize limitations of the research and pointed out that the sample of analysis is limited to the year 2016. Novel data is needed to accurately make inferences to the real state of the restaurant sector. Also highlighted is the exclusive use of online data and the substantial volume of reviews, resulting in the loss of relevant information due to software with a quantitative approach. The whole range of reviews forms a non-probabilistic sample that could produce a non-

realistic view of the main indicators but could enhance the external validity by the law of large numbers. They could disguise the reality of Brazilian restaurants. Moreover, the authors believe that TOURQUAL is the best way to capture the Brazilian perspective of quality service, although as all models elaborated, it cannot visualize the whole spectrum of service quality. The summation of the model and the sample size present an outstanding list of indicators and their relevance to management, planning, and future research under the consumer's view.

A comparison between countries can expand the research scope, such as an Italian study by Cozzio et al. (2020) which identified the taste of food as one of the leading indicators. This would open a gap to understand the differences between Brazil and other countries. Also, these results create opportunities for qualitative studies in each of the indicators. This research indirectly expanded the understanding of UGC and the service activity. However, to better comprehend the study's results, the authors recommend reapplying this research procedure with a wider scope in the time frame of the profile posts and the expansion to similar profiles in the service sectors (such as travel agencies, airlines, accommodation, and others). Given the findings, future research should also focus on qualitatively ascertaining publications on social media and review websites carried out by these same companies, expanding the discussion initiated here on service quality, brands, and marketing. Hence, identifying the type of these publications is possible given the diverse options of content on digital social media. Mazurek (2018) argued for the importance of psychographic factors for demand creation. Thus, while UGC analysis fosters an understanding of the perception regarding the actual demand, future insights about their psychographic profile could help business owners and managers target content-generating consumers.

Another reflection for future work is a correlation of the relationship between user reviews about the establishments evaluated and the number of evaluations and negative reviews with the profiles of these companies with their respective social networks. This reflection is relevant for future research on service quality and the UGC as the number of followers of the establishments would be directly related to the possible visualizations of the company's brand. Future research should also statistically validate the scale of indicators proposed here with a quantitative approach and developing hypothesis to determine which indicators from this study should remain on a final scale of TOURQUAL applied to restaurants. Moreover, the authors suggest expanding the research scope, including other cities and countries, and checking if the most relevant indicators identified in this research are the same or vary in other restaurant categories and cities. This cross-country study could help validate hypotheses related to changes in customer behavior and perception of quality or differences in service offered in restaurants worldwide.

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