Comparing Factors Influencing Loyal Consumption Behavior Towards Fast-Food Restaurants

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Abstract

Facing saturation back home, many global fast-food restaurants have enhanced their presence across tier 2 and tier 3 cities in India to increase their market. The factors that propelled this buoyancy include rapid urbanization, changing lifestyles, less switching costs, and a rise in annual middle-class spending, which has made this sector highly competitive for retaining customers' loyalty. A comparative study of three fast-food multi-national brands was conducted to evaluate service performance vis-à-vis customer preference to predict the basis of loyal consumption behavior. For measuring the service performance, two MCDM approaches were integrated with SERVQUAL methodology, that is, AHP & TOPSIS. The paper involved the identification of service quality dimensions and sub-dimensions relevant to fast-food service and then generating weights using the AHP technique, and then finally, establishing the ranking using TOPSIS. The findings revealed that food quality, timely service, clean and hygienic environment, availability of all menu items, consistency of taste, price sensitivity, friendly dealing, and soothing ambiance are the factors that bring loyal consumption behavior.

Keywords : **service quality, SERVQUAL, fast-food service, loyal consumption behavior, AHP, TOPSIS**

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The National Restaurant Association of India (NRAI) released its fourth India Food Services Report (IFSR, 2019), and estimated an 11% CAGR growth rate of the Indian foodservice industry, with the current market size being ₹ 4.23 lakh crore in 2018 – 19. The fast-food restaurants provide a quick and affordable alternative to home-cooked meals for adolescents, working professionals, and families. India's rising taste for fast food alongside aggressive urbanization is set to enlarge the size of the country's fast-food business to double the size by 2020. The growing inclination of youth towards informal eating out and preference for fast food has attracted global food chains facing saturation at home to enter developing economies. Traditionally, the concept of fast food was not as popular as it has become in recent times, mainly due to changing lifestyles, nuclear families, working women, and rising discretionary income.

After the introduction of the New Economic Policy in 1991, many multi-national corporations set up their businesses owing to the relaxed policies and opening of the economy. The entry of multinational corporations has not only changed the living standards of the people but also impacted their food habits.

In 1996, McDonald's came up with its first fast-food store in India, paving the way for other global players. Initially, the western fast-food chains were restrained only to larger urban areas and metros, but factors like

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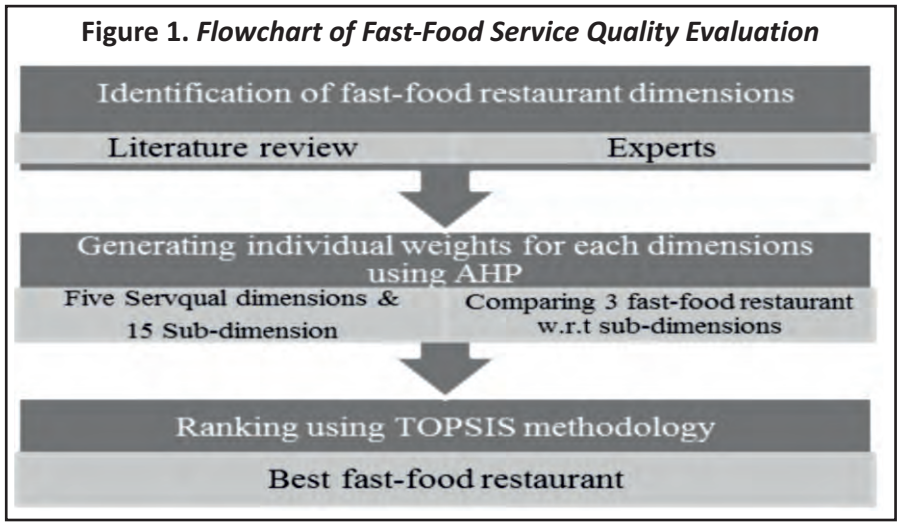
changing lifestyles, nuclear families, working women, and rising discretionary income have pushed them towards smaller semi-urban areas also (Prabhavathi et al., 2014). The fast-food market is mainly divided into four segments: fine dining, casual dining, quick-service restaurants, and cafes. Multiple outlets of international brands opened like McDonald's, Dominos, Taco Bell, Pizza Hut, KFC, Subway, Burger King, Dunkin Donuts, and Barista brands are some who dominate the domestic market. Taking the lead from the global chains, the domestic brands are also not lagging, such as Bikanerwala, Haldiram's, Pizza Corner, Nirulas, and Kaati Zone.

The fast-food service restaurants face very low customer loyalty owing to increasing competition and a lack of innovation in products and services. In recent years, both domestic and international fast-food chains are facing intense competition due to the saturation of the fast-food service industry, preference for home delivery, and tighter profit margins pushing them to operate on small margins. The profitability and market share of fast-food firms largely depend upon how well their services, including their food quality, are being perceived by the customer as the switching cost is less. The food quality and physical environment are significant determinants for understanding customer perceived value; customer perceived value plays a significant role in determining customer satisfaction, and it further helps in determining customer behavioral intentions (Slack et al., 2021). To retain the customers, the fast-food firms need to deliver services according to the customers' expectations for bringing satisfaction, profitability, and customer loyalty. Therefore, generating loyal consumption behavior requires understanding the needs and preferences of consumers and matching them with their offerings. Kotelnikov (2008) stated that increasing customer retention affects profits because cost-cutting and reducing customer grievances bring more profits.

The paper builds up an integrated approach by applying the AHP and TOPSIS methodologies on the five dimensions of SERVQUAL given by Parasuraman, Zeithaml, and Berry in the mid-eighties. The study includes the assessment of three fast-food service providers by comparing the five SERVQUAL dimensions and 15 sub-dimensions with each other to obtain weights and measure customer preference. The methodology includes identifying the specific fast-food service dimensions and sub-dimensions using previous literature and expert opinions; then, by applying the analytic hierarchy process (AHP), the individual weights for the dimensions were obtained, and then finally, by applying the Technique of Order Preference Similarity to the Ideal Solution (TOPSIS) methodology, the ranking to the three alternatives is established (Bhutia & Phipon, 2012). The research summary can be seen in the flowchart given in Figure 1.

The next section provides an overview of the available literature regarding service quality in the fast-food service sector.

Figure 1. ***Flowchart of Fast-Food Service Quality Evaluation***



Theoretical Background

India has been a service-driven economy rather than manufacturing; the service sector has contributed a lot towards generating employment and revenue for the economy. The success of the service sector largely depends upon its service quality, which plays an important role in developing a sustainable competitive advantage over competitors. Understanding the basis on which the customer evaluates the service quality is crucial for any organization to improve its service delivery and retain customers in the longer run. Measuring the quality of the product is far easier than measuring the quality of the services, mainly owing to its characteristics such as intangibility, inseparability, heterogeneity, and perishability. However, this hasn't deterred researchers from studying the concept and developing various service quality models (Cronin and Taylor's model, 1992 (SERVPERF); Grönroos model, 1982 & 1984; Parasuraman et al.'s model, 1985 (SERVQUAL)). The SERVQUAL methodology has been used extensively in all service sectors for measuring service quality. It consists of five dimensions: Reliability, assurance, tangibility, empathy, and responsiveness. This instrument turns into a famous tool for measuring the degree and direction of inconsistency between consumers' perceptions and expectations. The methodology was applied successfully in various sectors, including retail services; recreational services; computer services; banking; mental health; hotels, tour, & travel; dental services; higher education; supply chain partners; accounting firms; architectural services; car servicing; transportation; restaurants; airline; apparel retailing; grocery stores; and local government.

Multiple modified versions of SERVQUAL surfaced based on the suitability of the relevant industry, such as Dabholkar et al. (1996) (Retail Service Quality Scale (RSQS)) and Brady and Cronin's multi-dimensional and hierarchical model, 2001 (BCM). For instance, Knutson et al. (1990) proposed LODGSERV to improve what SERVQUAL might do in evaluating service quality, particularly for lodging services. Later, Stevens et al. (1995) developed DINSERV on the basis of SERVQUAL for restaurants and used inputs from the development of LODGSERV. The DINSERV model was developed for measuring consumer expectations of service quality within three segments: quick-service restaurants (QSR), casual/theme, and fine dining restaurants. Kim et al. (1999) applied the DINESERV model to Korean casual dining restaurants and measured the gaps perceived by customers in service quality.

These days, fast-food service providers face dynamic marketing circumstances that often dictate the strategies adopted by companies to stay competitive. The relationship between service quality and customer satisfaction brings loyal consumption behavior toward a particular brand, and customers display repeated purchases. Prabhavathi et al. (2014) measured the consumer preferences and their fast-food spending, and the analysis revealed that the major factor in consumer preference was taste, followed by the convenience of the store, and lastly, it was home food alternative. Carranza et al. (2018) stated that providing quality services positively influenced satisfaction, trust, and loyalty. Moreover, the trust component works as a mediator between satisfaction and loyalty. According to Sivathanu (2017), adolescents' food choices were highly influenced by marketing activities, including celebrity endorsements, message repetition, image, product placements, word of mouth, etc. Providing superior services to the customers generates loyalty, which, in turn, provides the security for demand in the future and profits. According to Bagla and Khan (2017), the popularity of the food chains largely depends upon the following things: less waiting period, variety, and cashbacks. Hence, from the above discussion, it can be concluded that the performance of any fast-food restaurant depends highly on two things: (a) service quality and (b) food quality, which also serve as the main determinants of customer satisfaction.

Further, measuring the service quality involves comparing different criteria with each other to determine the priority areas; hence, the usage of multiple criteria decisions making (MCDM) techniques has also increased. The MCDM techniques such as AHP, ANP, goal programming, WPM, WSM, ELECTRE, PROMETHE, TOPSIS, and grey theory are extensively used to measure service quality in areas where there is an issue of alternative selection

based on different conflicting criteria. This paper integrates the AHP and TOPSIS methodology with the SERVQUAL-based dimensions for the assessment of the best service provider in fast-food. Prof. Saaty developed the multi-criteria evaluation model AHP in 1980, a quantitative technique for measuring complex problems, and presented an objective methodology for deciding among a set of alternatives (Büyüközkan & Çifçi, 2012). Chua Chow and Luk (2005) integrated the AHP with SERVQUAL methodology, which provides a comparative assessment model for studying competition using the AHP framework to measure the service quality of fast-food restaurants.

There is another famous technique in MCDM that is used in this study, that is, TOPSIS, which selects the best alternative based on the distance from an ideal solution. Yildiz and Yildiz (2015) conducted a study by integrating AHP and TOPSIS for measuring the service quality of restaurants and discovered that food quality had been rated as the most important factor, which included maintaining appropriate food temperature, serving fresh and nutritious food, and offering service as expected by the customers. Xue et al. (2008) investigated customer satisfaction at four fast-food restaurants in China and eight fast-food restaurants in the U.S. using the TOPSIS method to identify the gaps. From the literature review, it was observed that there is no study available that has compared the restaurants concerning their dimensions and sub-dimensions, hence, in our study, the five dimensions and the 15 sub-dimensions are compared with each other in all alternatives, and then the priority weights are obtained for applying to rank using TOPSIS.

The dimensions and sub-dimensions were identified from the literature survey, as shown in Table 1.

Research Design

The 22 evaluative statements were identified using a literature review to measure fast-food restaurants. The data reduction technique (factor analysis) was applied to examine these statements. The dimensions and sub-dimensions for evaluating fast-food restaurants' service quality are depicted in Table 1.

Table 1. ***Dimensions and Sub-Dimensions of Fast-Food Restaurant Service Quality***

Dimensions	Sub-Dimension	Explanation	Author
Tangibles	Cleanliness	Hygiene of the restaurant, staff members, and restrooms	Hsu et al. (1997)
	Food Quality	It includes freshness, appearance, taste, nutritional value, etc.	Kivela (1997)
	Physical Facilities	The overall ambiance, lighting, music, parking, overall space, etc...	Cullen (2005)
Responsiveness	Aptness	Serving the right order at the right place	Liu & Tse (2018)
	Entirety	Availability of all kinds of dishes as shown in the menu	Yuksel & Yuksel (2002)
	Quickness	Customers do not wait long for their order	Liu & Tse (2018)
Reliability	Consistency	Consistency of food preparation	Yüksel & Yüksel (2002)
	Image	Right image of the restaurant in public	Cullen (2005)
	Expert	The expertise of chefs in providing unique food items	Yüksel & Yüksel (2002)
Assurance	Accuracy	No fraud or mix up of bills	Markovic et al. (2011)
	Price	Value for money spent	Sheldon & Fox (1988)
	Grievances	Handling of customer complaints	Cullen (2005)
Empathy	Helpful	Friendly dealing with server	Liu & Tse (2018)
	Knowledge	Server knowledge about food types & allergies	Yüksel & Yüksel (2002)
	Comfort	Spending time after food and sitting	Hsu et al. (1997)

Data Collection

Questionnaire

The survey questionnaire was divided into five sections. The first section consisted of demographic questions; the second section covered all 22 statements generated using a literature review on a 7 - point Likert scale; the second section included a pair-wise comparison of five SERVQUAL dimensions based on the original AHP instrument (Saaty, 1980): a 9-point importance scale shown in Table 2. Respondents were provided with the definitions of each service dimension as shown in Table 1; section fourth included the pair-wise evaluation of the 15 sub-dimensions for each dimension, and the last section covered the evaluation of three restaurants for each sub-dimension for generating weights that would be used in the TOPSIS methodology for ranking.

To check the validity and reliability of the questionnaire, a pilot test was conducted with 30 regular consumers to establish the scale's validity. To check the reliability and the internal consistency of the data, Cronbach's alpha method was applied. The combined alpha value for all dimensions was .899 since all values exceeded the requirement of .6 or above, ensuring the scale's internal consistency.

Sample

A cross-sectional study was conducted on 30 fast-food restaurant outlets from three districts of Punjab, India, that is, Amritsar, Jalandhar, and Ludhiana, during the period of September & October 2019. The sampling frame included both male and female customers above 18 years who had visited the three restaurants at least five times in the last six months. By applying a stratified sampling technique, the data were collected using a survey questionnaire by interviewing 692 consumers visiting the three restaurant chains (Rest A, Rest B, & Rest C) on a random basis, out of which 230 responses were dropped due to inconsistencies. The mean of the responses from respondents was taken for the formulation of pair-wise comparison using a comparison scale given in Table 2.

Methodology

The decision problem examined in this paper is to determine the factors responsible for better service delivery in fast-food restaurants vis-à-vis customer preference. The goal is to identify the best fast-food service provider from the perspective of consumers and to understand their loyal consumption behavior. The methodology involves the following steps:

Table 2. ***The Comparison Scale (Given by Saaty, 1980)***

Value	Definition	Explanation
1	Equal importance (E.I.)	Equal contribution by each activity
3	Weakly important (W.I.)	One activity was slightly better than the other activity
5	Strongly important (S.I.)	One activity is better than another activity
7	Very strongly important (VSI)	One activity is strongly favored and dominates the other
9	Extremely important (EMI)	When one activity is preferred over another at the highest level
2,4,6,8	In-between values	When we have a compromise
Reciprocals	If one parameter is strongly more important (S.I.) than the other, then it takes (5) as the value, and the other will take (1/5) value.	

(i) First, the statements were developed related to fast-food service restaurants using previous literature review. The data collected were tested for reliability and validity checks. The test for validity was conducted using factor analysis (principal component method and varimax rotation) on the selected 22 variables to make sure that it is suitable for the study by using SPSS 17.0. Factor analysis was applied to 22 statements, which were evaluated on a 7-point Likert scale regarding the opinion of consumers towards the perception of fast-food service quality. Varimax rotated factor loadings of 15 items reported that more than 0.45 were kept under five dimensions: tangibles, reliability, assurance, responsiveness, and empathy, as shown in Table 1.

(ii) Second, the customers were asked to evaluate the three restaurants by comparing the dimensions and sub-dimensions with each other and constructing a pair-wise comparison matrix using a 9 - point importance scale given by Saaty (1989).

(iii) Third, based on the comparison matrices, the priority weights were generated for the three fast-food restaurants.

(iv) Lastly, using the weights obtained above, the TOPSIS analysis was applied to rank the fast-food restaurants.

Analysis and Results

Construction of AHP Pair-Wise Comparison Matrices

Based on the judgments of the customers visiting the restaurants, a pair-wise comparison matrix was generated for obtaining weights of dimension, sub-dimension, and restaurants, respectively. The response from respondents must be checked for its consistency, called a Consistency Ratio (C.R.).

It is calculated as : ($CR = CI/RI$)

where,

CI is the Consistency Index ($CI = \lambda \max - n) / (n - 1)$, where n denotes the number of dimensions and λ max denotes the largest Eigenvalue. The RI is regarded as Random Consistency Index, which was given by Saaty in 2012, and it provides the matrices for calculating R.I. values of different sizes, as shown in Table 3. The ratio of CI to the average Random Index (R.I.) for the same order matrix is called the consistency ratio (C.R.). A consistency ratio of 0.10 or less is considered acceptable. For instance, if one respondent prefers A to B and B to C, that respondent cannot prefer C to A.

The linguistic terms depicted in Table 2 display the comparative strength of one dimension against other parameters and assign the corresponding number. If a respondent states one parameter as weakly important than the other parameter, then it will take (3) and the other parameter will take (1/3) value. Table 4 displays the pair-wise comparison matrix of five dimensions using Table 2.

After generating the priority weights for dimensions, similar pair-wise comparison matrixes were developed for the 15 sub-dimensions, as shown in Tables 5 – 9. The summary of the priority weights generated for dimensions and sub-dimensions is depicted in Table 10.

Table 3. ***Random Consistency Index (RI) (Saaty, 2012)***

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Table 4. ***Comparison Matrix of Dimensions***

	Tangibles	Responsiveness	Reliability	Assurance	Empathy	Weights (Eigen Vector) (C.I. = 0.087)
Tangibles	1	1	3	3	3	0.345
Responsiveness	1	1	1	3	1	0.230
Reliability	1/3	1	1	1	3	0.188
Assurance	1/3	1/3	1	1	1	0.115
Empathy	1/3	3	1/3	1	1	0.120

Table 5. ***Comparison Matrix for Sub-Dimensions Under Tangibles***

Tangibles	Cleanliness	Food Quality	Physical Facilities	Weights (Eigen Vector) (C.I. = 0.019)
Cleanliness	1	1/3	3	.25
Food Quality	3	1	5	.63
Physical Facilities	1/3	1/5	1	.10

Table 6. ***Comparison Matrix for Sub-Dimensions Under Responsiveness***

Responsiveness	Aptness	Entirety	Quickness	Weights (Eigen Vector) (C.I. = 0.032)
Aptness	1	1/5	3	.18
Entirety	5	1	7	.73
Quickness	1/3	1/7	1	.08

Table 7. ***Comparison Matrix for Sub-Dimensions Under Reliability***

Reliability	Consistency	Image	Expert	Weights (Eigen Vector) (C.I. = 0.014)
Consistency	1	1	5	.48
Image	1	1	3	.40
Expert	1/5	1/3	1	.11

Table 8. ***Comparison Matrix for Sub-Dimensions Under Assurance***

Assurance	Accuracy	Price	Grievances	Weights (Eigen Vector) (C.I. = 0.067)
Accuracy	1	1	1/5	.08
Price	5	1	3	.61
Grievances	5	1/3	1	.29

Table 9. ***Comparison Matrix for Sub-Dimensions Under Empathy***

Empathy	Helpful	Knowledge	Comfort	Weights (Eigen Vector) (C.I. = 0.019)
Helpful	1	1/3	1/3	.13
Knowledge	3	1	1/3	.28
Comfort	3	3	1	.58

Table 10. ***Summary of the Measured Weights for Dimensions and Sub-Dimensions***

Dimensions	wt	Criterion	wt	Dimensions	wt	Criterion	wt
Tangibles	0.345	Cleanliness	.25	Assurance	0.115	Accuracy	.08
		Food Quality	.63			Price	.61
		Physical Facilities	.10			Grievances	.29
Responsiveness	0.230	Aptness	.18	Empathy	0.120	Helpful	.13
		Entirety	.73			knowledge	.28
		Quickness	.08			Comfort	.58
Reliability	0.188	Consistency	.48				
		Image	.40				
		Expert	.12				

The next section has compared the three alternatives, that is, Rest A, Rest B, and Rest C with the sub-dimensions following the methodology used above, and the importance rating has been established as shown in Tables 11 – 25.

Table 11. ***Comparison Matrix of Restaurants for Cleanliness***

Cleanliness	Rest A	Rest B	Rest C	Weights (Eigen vector) (C.I. = 0.01)
Rest A	1	1	5	.48
Rest B	1	1	3	.40
Rest C	1/5	1/3	1	.11

Table 12. ***Comparison Matrix of Restaurants for Food Quality***

Food Quality	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.01)
Rest A	1	3	5	.65
Rest B	1/3	1	1	.18
Rest C	1/5	1	1	.15

Table 13. ***Comparison Matrix of Restaurants for Physical Facilities***

Physical Facilities	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I.= 0.003)
Rest A	1	3	7	.66
Rest B	1/3	1	3	.24
Rest C	1/7	1/3	1	.08

Table 14. ***Comparison Matrix of Restaurants for Aptness***

Aptness	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.014)
Rest A	1	1/3	1/5	.11
Rest B	3	1	1	.40
Rest C	5	1	1	.48

Table 15. ***Comparison Matrix of Restaurants for Entirety***

Entirety	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.019)
Rest A	1	1/3	3	.25
Rest B	3	1	5	.63
Rest C	1/3	1/5	1	.10

Table 16. ***Comparison Matrix of Restaurants for Quickness***

Quickness	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.032)
Rest A	1	5	7	.73
Rest B	1/5	1	3	.18
Rest C	1/7	1/3	1	.08

Table 17. ***Comparison Matrix of Restaurants for Consistency***

Consistency	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.032)
Rest A	1	3	7	.64
Rest B	1/5	1	5	.27
Rest C	1	3	1	.07

Table 18. ***Comparison Matrix of Restaurants for Image***

Image	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.03)
Rest A	1	1/5	3	.18
Rest B	5	1	7	.73
Rest C	1/3	1/7	1	.08

Table 19. ***Comparison Matrix of Restaurants for Expert***

Expert	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.01)
Rest A	1	3	1/5	.17
Rest B	1/3	1	1/9	.07
Rest C	5	9	1	.75

Table 20. ***Comparison Matrix of Restaurants for Accuracy***

Accuracy	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.003)
Rest A	1	1	1/7	.10
Rest B	1	1	1/9	.09
Rest C	7	9	1	.79

Table 21. ***Comparison Matrix of Restaurants for Price***

Price	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.014)
Rest A	1	3	1	.40
Rest B	1/3	1	1/5	.11
Rest C	1	5	1	.48

Table 22. ***Comparison Matrix of Restaurants for Grievances***

Grievances	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.03)
Rest A	1	7	7	.64
Rest B	1/7	1	1/5	.07
Rest C	1/7	5	1	.27

Table 23. ***Comparison Matrix of Restaurants for Helpful***

Helpful	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.014)
Rest A	1	1/3	1	.18
Rest B	3	1	5	.65
Rest C	1	1/5	1	.15

Table 24. ***Comparison Matrix of Restaurants for Knowledge***

Knowledge	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = 0.01)
Rest A	1	3	5	.63
Rest B	1/3	1	3	.25
Rest C	1/5	1/3	1	.10

Table 25. ***Comparison Matrix of Restaurants for Comfort***

Comfort	Rest A	Rest B	Rest C	Weights (Eigen Vector) (C.I. = .003)
Rest A	1	1	9	.49
Rest B	1	1	7	.45
Rest C	1/9	1/7	1	.05

The priority weight of each alternative was obtained by multiplying the matrix of evaluation ratings by the vector of attribute weights and summing over all attributes, as shown in Table 26.

Ranking of Fast-Food Restaurants Using TOPSIS Methodology

After generating weights, the ranking of the restaurants is obtained using another MCDM technique, that is, TOPSIS (Hwang & Yoon, 1981), for selecting the best alternative based on the distance from the ideal solution. It means that the selective attribute should have the shortest and farthest distance from the positive ideal solution and the negative ideal solution. The TOPSIS methodology is shown below:

Step 1 : Generating Normalized Matrix. The normalized matrix is generated using the weights obtained from Table 27. Dividing the dimension weight obtained in Table 4 by the square root of sum of squares value of individual weights of alternatives given in Table 27 ($0.595/\sqrt{(0.595)^2 + (0.237)^2 + (0.130)^2} = 0.595/0.659 = 0.910$), the normalized matrix is obtained, as shown in Table 28.

Step 2 : Formulation of Weighted Normalized Decision Matrix. For generating the weighted normalized decision matrix, the weight of each dimension is multiplied by the normalized performance value of each cell, as shown in Table 29.

$0.345 \times 0.910 = 0.314$

Table 26. ***Summary of Priority Weights for Restaurant***

Sub-Dimensions of Tangibles	**Cleanliness**	**Food Quality**	**Physical Facilities**	**Alternative Priority Weight**
Weight	.25	.63	.10	
Rest A	.48	.65	.66	0.595
Rest B	.40	.18	.24	0.237
Rest C	.11	.15	.08	0.130
Sub-Dimensions of Responsiveness	**Aptness**	**Entirety**	**Quickness**	**Alternative Priority Weight**
Weight	.18	.73	.08	
Rest A	.11	.25	.73	0.260
Rest B	.40	.63	.18	0.546
Rest C	.48	.10	.08	0.165
Sub-Dimensions of Reliability	**Consistency**	**Image**	**Expert**	**Alternative Priority Weight**
Weight	.48	.40	.11	
Rest A	.64	.18	.17	0.397
Rest B	.27	.73	.07	0.429
Rest C	.07	.08	.75	0.148
Sub-Dimensions of Assurance	**Honesty**	**Price**	**Grievances**	**Alternative Priority Weight**
Weight	.08	.61	.29	
Rest A	.10	.40	.64	0.437
Rest B	.09	.11	.07	0.094
Rest C	.79	.48	.27	0.434
Sub-Dimensions of Empathy	**Helpful**	**Knowledge**	**Comfort**	**Alternative Priority Weight**
Weight	.13	.28	.58	
Rest A	.18	.63	.49	0.484
Rest B	.65	.25	.45	0.415
Rest C	.15	.10	.05	0.076

Table 27. ***Summary of Weights Obtained for Each Alternative***

	Tangibles	**Responsiveness**	**Reliability**	**Assurance**	**Empathy**
	0.345	0.230	0.188	0.115	0.120
Rest A	0.595	0.260	0.397	0.437	0.484
Rest B	0.237	0.546	0.429	0.094	0.415
Rest C	0.130	0.165	0.148	0.434	0.076

Table 28. ***Normalization of the Decision Matrix***

	Tangibles	**Responsiveness**	**Reliability**	**Assurance**	**Empathy**
Rest A	0.910	0.411	0.659	0.330	0.662
Rest B	0.364	0.870	0.709	0.129	0.741
Rest C	0.197	0.269	0.247	0.934	0.110

Table 29. *Weighted Normalized Decision Matrix*

	Tangibles	Responsiveness	Reliability	Assurance	Empathy
Rest A	0.3140	0.0946	0.1240	0.0380	0.0794
Rest B	0.1256	0.2002	0.1333	0.0148	0.0889
Rest C	0.0680	0.0618	0.0465	0.1075	0.0132

Table 30. *Calculating Ideal Best and Ideal Worst Values*

	Tangibles	Responsiveness	Reliability	Assurance	Empathy
Rest A	0.3140	0.0946	0.1240	0.0380	0.0794
Rest B	0.1256	0.2002	0.1333	0.0148	0.0889
Rest C	0.0680	0.0618	0.0465	0.1075	0.0132
(V^+_j)	0.314	0.0946	0.1333	0.1075	0.088
(V^-_j)	0.068	0.0618	0.0465	0.0148	0.013

Step 3 : Generating Ideal Best & Ideal Worst. Next, we calculate the ideal best (V^+_j) and ideal worst (V^-_j) value. The maximum value of the criteria is regarded as the ideal best and the lower value in the matrix for the given criteria is the ideal worst. Such as, the ideal best in the case of tangibles criteria will be 0.314, and the ideal worst is 0.068, as shown in Table 30.

Step 4 : Calculate the Euclidian Distance from the Ideal Best and the Ideal Worst. The formula for calculating the Euclidian distance from the ideal best is:

$$S_i^+ = \left[\sum_{j=1}^{m} (V_{ij} - V_j^+)^2\right]^{0.5}$$

For example, calculating the Euclidian distance from ideal best for Rest A:

$$S_i^+ ((0.314-0.314)^2+(0.094-0.094)^2+(0.124-0.133)^2+(0.038-0.107)^2+(0.079-0.088)^2)^{0.5} = 0.070$$

Similarly, the Euclidian distance from the ideal worst is calculated using the equation:

$$S_i^- = \left[\sum_{j=1}^{m} (V_{ij} - V_j^-)^2\right]^{0.5}$$

For example, calculating the Euclidian distance from ideal worst for Rest A:

$$S_i^- = ((0.314 - 0.068)^2 + (0.094 - 0.0618)^2 + (0.124 - 0.0465)^2 + (0.038 - 0.0148)^2 + (0.079 - 0.013)^2)^{0.5}$$
$$= 0.27$$

Table 31 shows the results of Euclidian distance from ideal best and ideal worst of all alternatives.

Step 5: Generating Performance Score (P_i) and Ranking. Finally, the performance score is calculated using the formula given below:

Table 31. ***Calculating Euclidian Distance from the Ideal Best and Ideal Worst***

	Tangibles	Responsiveness	Reliability	Assurance	Empathy	S_i^+	S_i^-
Rest A	0.314	0.0946	0.1333	0.107	0.088	0.07	0.27
Rest B	0.068	0.0618	0.0465	0.0148	0.013	0.234	0.189
Rest C	0.314	0.0946	0.1333	0.107	0.088	0.273	0.092
V_j^+	0.314	0.0946	0.1333	0.107	0.088		
V_j^-	0.068	0.0618	0.0465	0.0148	0.013		

Table 32. ***Performance Score and Ranking***

	S_i^+	S_i^-	$S_i^+ + S_i^-$	P_i	Rank
Rest A	0.07	0.27	0.34	0.794	1
Rest B	0.234	0.189	0.423	0.446	2
Rest C	0.273	0.092	0.365	0.252	3

$$P_i = \frac{S_i^-}{S_i^+ + S_i^-}$$

Analyzing the results obtained in Table 32, Rest A has been rated as the best service provider based on the weightage given to dimensions and sub-dimensions followed by Rest B and Rest C.

Discussion

The paper analyzes the three well-known multi-national global brands (Rest A, Rest B, & Rest C) concerning their service delivery and was ranked based on consumer feedback. The results obtained in the above sections reveal that the most important dimension in a fast-food restaurant is tangibles with 34%, confirming that the attractiveness of a restaurant depends largely on its food quality, taste, and hygiene. Next, the responsiveness and reliability dimensions are rated important with 23% and 19%, emphasizing the need for quick delivery and consistency of taste. Lastly, both empathy and assurance are given 12% importance in comparison with other service quality dimensions.

In the case of sub-dimensions, the weights obtained show that 63% of consumers considered food quality as the most important aspect of the tangibles dimension. Afterward, cleanliness and a hygienic environment are given priority with 25%, followed by having a good infrastructure under physical facilities with 10%.

Under the responsiveness dimension, availability of all menu items served, that is, entirety has been given the highest priority with 73%. Then, placing the right order at the right place, that is, aptness is given the next higher priority with 18%, and lastly, facing less waiting time for the order is given 8% weightage.

For the third dimension: reliability, it is needless to say that the consistency of delivering tasty and quality food every time was ranked higher by 48% of the respondents. The next priority was given to the market image of the restaurants as the majority of the people followed the positive word of mouth with 40%, and finally, the expertise of people working in restaurants was given weightage of 12%.

For the assurance dimension, the price factor has been given the topmost priority with 61%, authenticating the

price-sensitive nature of Indian consumers. Then, how the firm handles grievances of customer issues related to food quality or service effectiveness is weighted 29%, and lastly, serving accurate billing was also considered important at 10%.

For empathy, the helpful and friendly nature of server with customers is considered as the most important variable with 58%, followed by server knowledge about the food and allergies associated at 28%, and lastly, the comfortable environment which allows people to stay in the restaurant even after the consumption of food at 12%.

The final ranking for the alternatives was obtained by following the TOPSIS methodology based on their performance on various dimensions and sub-dimensions. Rest A has been ranked as the best service provider, followed by Rest B and, lastly, Rest C.

Conclusion

India has witnessed a massive flow of multi-national fast-food service restaurants in the last decade mainly due to the increased preference of people for eating out. This paper was developed to identify the variables which influence customer loyalty toward fast-food restaurants. The data were collected from the customers who have visited the three global fast-food restaurants regularly and measured relative performance. It can be concluded from the analysis section that for generating a loyal consumption behavior, the fast-food restaurants need to possess the following aspects such as food quality, timely service, clean and hygienic environment, availability of all menu items, consistency of taste, price sensitivity, friendly dealing, and soothing ambiance. The management of these fast-food chains may use these results to improve their offerings based on the feedback from consumers. The above analysis reveals that the best service provider has all the requisites that matter to the customers and provides a scope of improvement for others to follow.

Theoretical and Managerial Implications

There are multiple service quality models developed by the researchers for measuring the concept, however, there are continuous changes, and manipulation of the existing models is witnessed. This study proposes a new approach by integrating the SERVQUAL – AHP – TOPSIS methodology and conducted a pair-wise analysis of all sub-dimensions concerning the alternatives for generating priority weights. Hence, this study gives new insight into service quality evaluation using the MCDM approach. Moreover, the marketers from the fast-food business can utilize the analysis and implement the factors which bring loyalty to customers, as highlighted above. This study will also help the marketers to understand why people select restaurants, on what basis they select, and how they rate service quality.

Limitations of the Study and Scope for Future Research

The study is limited to the global chains dealing in fast-food business covering tier-2 cities only; hence, it can't be generalized toward other restaurant businesses. The proposed model is evaluated by AHP, which has given a comparative result of service performance, but it uses crisp values, which are inadequate and defective in handling the ambiguity associated with human beings' subjective judgments.

A similar study can be applied to other categories of restaurants to test the results. Also, there can be other MCDM methods, such as Fuzzy sets theory, ELimination Et Choice Translating Reality (ELECTRE), the Preference Ranking Organization Method for Enrichment of Evaluations (PROMETHEE), which can be used for evaluations.

Authors' Contribution

Dr. Ajwinder Singh conceptualized the idea, developed the research design, and applied the methodology. Parul Nanda extracted research papers, developed the literature review, and wrote the conclusion of the study.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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References

Bagla, R. K., & Khan, J. (2017). Customers' expectations and satisfaction with online food ordering portals. *Prabandhan: Indian Journal of Management, 10*(11), 31–44. https://doi.org/10.17010/pijom/2017/v10i11/119401

Bhutia, P. W., & Phipon, R. (2012). Application of AHP and TOPSIS method for supplier selection problem. *IOSR Journal of Engineering, 2*(10), 43 – 50. https://doi.org/10.9790/3021-021034350

Brady, M. K., & Cronin Jr., J. J. (2001). Some new thoughts on conceptualizing perceived service quality: A hierarchical approach. *Journal of Marketing, 65*(3), 34–49. https://doi.org/10.1509/jmkg.65.3.34.18334

Büyüközkan, G., & Çifçi, G. (2012). A novel hybrid MCDM approach based on fuzzy DEMATEL, fuzzy ANP and fuzzy TOPSIS to evaluate green suppliers. *Expert Systems with Applications, 39*(3), 3000 – 3011. https://doi.org/10.1016/j.eswa.2011.08.162

Carranza, R., Díaz, E., & Martín - Consuegra, D. (2018). The influence of quality on satisfaction and customer loyalty with an importance-performance map analysis: Exploring the mediating role of trust. *Journal of Hospitality and Tourism Technology, 9*(3), 380 – 396. https://doi.org/10.1108/JHTT-09-2017-0104

Chua Chow, C., & Luk, P. (2005). A strategic service quality approach using analytic hierarchy process. *Managing Service Quality: An International Journal, 15*(3), 278–289. https://doi.org/10.1108/09604520510597827

Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing, 56*(3), 55 – 68. https://doi.org/10.1177/002224299205600304

Cullen, F. (2005). Factors influencing restaurant selection in Dublin. *Journal of Foodservice Business Research, 7*(2), 53 – 85. https://doi.org/10.1300/J369v07n02_05

Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science, 24*(1), 3–16. https://doi.org/10.1007/BF02893933

Grönroos, C. (1982). *Strategic management and marketing in the service sector*. Chartwell - Bratt.

Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing, 18*(4), 36 – 44. https://doi.org/10.1108/EUM0000000004784

Hsu, C. H., Byun, S., & Yang, I.-S. (1997). Attitudes of Korean college students towards quick-service, family-style, and fine dining restaurants. *Journal of Restaurant & Foodservice Marketing, 2*(4), 65–85. https://doi.org/10.1300/J061v02n04_05

Hwang, C.- L., & Yoon, K. (1981). Methods for multiple attribute decision making. In, *Multiple attribute decision making. Lecture notes in economics and mathematical systems* (Vol. 186). Springer. https://doi.org/10.1007/978-3-642-48318-9_3

Kim, H. J., McCahon, C., & Miller, J. (2003). Service orientation for contact employees in Korean casual-dining restaurants. *International Journal of Hospitality Management*, *22*(1), 67–83. https://doi.org/10.1016/S0278-4319(02)00073-7

Kivela, J. J. (1997). Restaurant marketing: Selection and segmentation in Hong Kong. *International Journal of Contemporary Hospitality Management, 9*(3), 116–123. https://doi.org/10.1108/09596119710164650

Knutson, B., Stevens, P., Wullaert, C., Patton, M., & Yokoyama, F. (1990). Lodgserv: A service quality index for the lodging industry. *Hospitality Research Journal, 14*(2), 277–284. https://doi.org/10.1177/109634809001400230

Kotelnikov, V. (2008). *Customer retention: Driving profits through giving lots of reasons to stay*. www.1000ventures.com/business_guide/crosscuttings/customer_retention.html

Liu, P., & Tse, E. C.-Y. (2018). Exploring factors on customers' restaurant choice: An analysis of restaurant attributes. *British Food Journal, 120*(10), 2289 – 2303. https://doi.org/10.1108/BFJ-10-2017-0561

Markovic, S., Raspor Jankovic, S., & Dorcic, J. (2011). *What are the key dimensions of restaurant service quality? An empirical study in the city restaurant settings*. Available at SSRN. https://ssrn.com/abstract=2165742

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41 – 50. https://doi.org/10.1177/002224298504900403

Prabhavathi, Y., Kishore, N. T., & Kumar, M. R. (2014). Consumer preference and spending pattern in Indian fast food industry. *International Journal of Scientific and Research Publications*, *4*(2), 1–5.

Saaty, T. L. (1980). *The analytic hierarchy process: Planning, priority setting*. McGraw-Hill International Book, Co.

Saaty, T. L. (1989). Decision making, scaling, and number crunching. *Decision Sciences*, *20*(2), 404–409. https://doi.org/10.1111/j.1540-5915.1989.tb01887.x

Saaty, T. L. (2012). *Decision making for leaders: The analytic hierarchy process for decisions in a complex world* (3rd revised edition). RWS Publications.

Sheldon, P. J., & Fox, M. (1988). The role of foodservice in vacation choice and experience: A cross-cultural analysis. *Journal of Travel Research, 27*(2), 9 – 15. https://doi.org/10.1177/004728758802700202

Sivathanu, B. (2017). Food marketing and its impact on adolescents' food choices. *Indian Journal of Marketing*, *47*(8), 46 – 60. https://doi.org/10.17010/ijom/2017/v47/i8/117432

Slack, N. J., Singh, G., Ali, J., Lata, R., Mudaliar, K., & Swamy, Y. (2021). Influence of fast-food restaurant service quality and its dimensions on customer perceived value, satisfaction and behavioural intentions. *British Food Journal, 123*(4), 1324 – 1344. https://doi.org/10.1108/BFJ-09-2020-0771

Stevens, P., Knutson, B., & Patton, M. (1995). DINESERV: A tool for measuring service quality in restaurants. *The Cornell Hotel and Restaurant Administration Quarterly*, *36*(2), 56 – 60. https://doi.org/10.1016/0010-8804(95)93844-K

Xue, D., Zhao, Q., & Guo, X. (2008, October). TOPSIS method for evaluation customer service satisfaction to fast food industry. In, *2008 IEEE International Conference on Service Operations and Logistics, and Informatics*, 920 – 925. IEEE. https://doi.org/10.1109/SOLI.2008.4686530

Yildiz, S., & Yildiz, E. (2015). Service quality evaluation of restaurants using the AHP and TOPSIS method. *Journal of Social and Administrative Sciences, 2*(2), 53 – 61. http://dx.doi.org/10.1453/jsas.v2i2.233

Yüksel, A., & Yüksel, F. (2002). Market segmentation based on tourists' dining preferences. *Journal of Hospitality & Tourism Research, 26(*4), 315 – 331. https://doi.org/10.1177/109634802237482

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