

ANALYSIS OF CUSTOMER SERVICE QUALITY BASED ON SERVQUAL (SERVICE QUALITY) AND ANALYTIC HIERARCHY PROCESS (AHP) METHODS

Regina Puteri Laurichela¹; Cegi Cahyadi²

¹Information Systems Study Program
Universitas Nusa Mandiri

www.nusamandiri.ac.id

regina11162876@nusamandiri.ac.id; cegi.ccd@nusamandiri.ac.id

Abstract— The purpose of conducting this study is to identify the attributes of service quality, the difference between expectations and perceptions (gaps) of each attribute with the Servqual method, and the priority of improvement recommendations with the Analytical Hierarchy Process method. This research is a descriptive research. The collection of data used is with a simple random. The population in this study is consumers who use services in The Healthy Catering. The sample took 80 respondents. The research instruments used are the identification of servqual instruments and AHP instruments. The method of data collection is by observation, library study, interview, and questionnaire dissemination. Data analysis techniques that will be conducted are validity, reliability, Servqual (Service Quality), and Analytic Hierarchy Process (AHP) tests. From the results of this study showed that 1) obtained six highest gap values including E1 with a gap value of -0.375, R2 with gap value -0.350, R4 with gap value -0.338, E3 with gap value -0.275, R1 with gap value is -0,263, and RV1 with gap value is -0,150. 2) weighted Servqual calculation result shows improvement priority for attributes with high gaps, it is E1, R4, E3, RV2, R2, and R1.

Keywords: Service Quality, Consumer, Service Quality, Analytic Hierarchy Process.

Intisari— Tujuan dilakukannya penelitian ini adalah untuk mengidentifikasi atribut-atribut kualitas pelayanan, nilai selisih antara harapan dan persepsi (gap) dari masing – masing atribut dengan metode Servqual, dan prioritas rekomendasi perbaikan dengan metode Analytical Hierarchy Process. Penelitian ini adalah jenis penelitian deskriptif. Pengumpulan data yang digunakan adalah dengan acak sederhana. Populasi dalam penelitian ini adalah konsumen yang menggunakan jasa pada The Healthy Catering. Sampel yang diambil sebanyak 80 orang responden. Instrumen penelitian yang digunakan adalah identifikasi instrument servqual dan instrumen AHP. Metode pengumpulan data

dengan observasi, studi pustaka, wawancara dan penyebaran kuesioner. Teknik analisis data yang akan dilakukan adalah dengan uji validitas, reliabilitas, metode Servqual (Service Quality) dan Analytic Hierarchy Process (AHP). Dari hasil penelitian ini menunjukkan bahwa 1) didapatkan 6 nilai gap tertinggi diantaranya E1 dengan nilai gap -0,375, R2 dengan nilai gap -0.350, R4 dengan nilai gap -0.338, E3 dengan nilai gap -0.275, R1 dengan nilai gap adalah -0,263, dan RV1 dengan nilai gap adalah -0,150 2) hasil perhitungan Servqual terbobot menunjukkan prioritas perbaikan untuk atribut dengan gap tinggi yaitu E1, R4, E3, RV2, R2, dan R1.

Kata kunci: Kualitas Layanan, Konsumen, Service Quality, Analytic Hierarchy Process.

INTRODUCTION

Culinary is one of the most promising industries. This is because the culinary sector can sustain market share, and its product, such as food, satisfies one of the three basic human needs. Catering is a prevalent culinary business among the public. Catering is a prevalent business that employs many people, as it is believed to have good prospects and produces promising returns. According to Anggraini (2021), the community has a variety of catering businesses, including catering for company personnel, catering for transportation, catering for celebrations/parties, special catering, traditional catering, and catering for hospitals.

A catering entrepreneur must consider many factors to ensure that the catering business they are building succeeds, including the quality of the food delicacy, the variety of the menu supplied to customers, the performance of serving staff, and the cleanliness of the food and equipment used (Riadikemas, 2021). These factors are summed up in one significant factor: the quality of catering services. Catering service quality is determined by the food's quality, the catering staff's skill, and standard work procedures (Syafitr & Herlawati,

2016). The primary focus for service providers to ensure that the services they provide are of high quality and consumer-oriented is on achieving excellent service quality.

This study uses the Service Quality method and the Analytic Hierarchy Process, which can determine the quality criteria that must be further improved by a service provider where the gap between expectations and perceptions is used as the basis for measuring (Sikumbang, 2017).

The Servqual method will be developed to assist consumers in locating high-quality services across five servqual dimensions, namely Reliability, Responsiveness, Tangibles, Assurance, and Empathy. (2017) (Supartiningsih). This method allows for identifying the gap between consumer expectations and desires. Meanwhile, AHP is utilized to aid in weighting each criterion's sub-criteria (tangibles, reliability, responsiveness, assurance, and empathy) through pairwise comparison analysis. The research findings are supposed to provide insight into service criteria that need to be improved in order for the organization to increase service quality.

Numerous scholars have researched service quality analysis using both servqual and AHP methods (Ammarapala, 2017); (Mahmudi, 2021); (Putri et al., 2020); (Zaidiah et al., 2021); (Efendi et al., 2019).

Serving consumers is a phenomenon that frequently manifests itself in acquiring high-quality service, such as that provided by catering services, The Healthy Catering. Consumer complaints frequently include the server's performance. Consumers express their dissatisfaction with the waiter's politeness, friendliness, alertness, and speed in giving service (Simanjuntak et al., 2018). Then there is the presentation and food quality. The issues that occur may be something that The Healthy Catering specializes in solving by providing the highest quality service. As a result, to optimize performance and service quality, a service provider requires a function capable of incorporating the "voice of customer" while prioritizing consumer expectations and desires. By determining the quality of service concerning consumer desires, this research is supposed to provide companies with solutions for service improvement.

According to Loveloc (Fatihudin & Firmansyah, 2019), a service is a service that service providers provide to service users. The process is not implemented through physical products, but through intangible services that typically do not result in ownership of any production sources. Kotler and Armstrong (in Indrasari, n.d.) define service quality as the features and characteristics that a service or

product as a whole possesses that can directly or indirectly meet consumer needs. Meanwhile, consumer satisfaction, as defined by Philip Kotler and Kevin Lane Keller, is the feeling that consumers have when they compare the performance (results) of the products or services they receive to their expectations for the performance obtained, both in terms of pleasure and disappointment (Indrasari, n.d.).

The servqual and AHP methodologies were used to research the Thai toll road authority controlled by the Expressway Authority of Thailand (EXAT). This study aims to determine the quality of toll road services and identify the most critical service criteria. The SERVQUAL approach is combined with a gap analysis model to evaluate service expectations and perceptions, as well as the Analytic Hierarchy Process (AHP) method to determine the relative importance of different service criteria. The research contributes to a complete understanding of toll road users' expectations and how to maximize their satisfaction by minimizing detected gaps. Additionally, the findings advise which service characteristics EXAT should prioritize to maintain the best V toll road services standards. (Ammarapala, 2017).

The research conducted by Putri (2020), entitled "Assessment of Customer Satisfaction with Service Quality X Using the Servqual and AHP Methods," was also conducted to ascertain customer satisfaction with service quality and the order of priority for planned service quality X enhancements. Customer satisfaction was positive at a value of 4.025, indicating that customers are satisfied with X's service quality.

Syafitri & Herlawati (2016) conducted another study on the same topic, entitled "Assessment of Longe Digital Service Quality Using Servqual Methods and Analytical Hierarchy Process." This research intends to assist the Bank in establishing the highest priority areas for service quality improvement, specifically those where service quality is still judged unacceptable by the Bank's service users. Similar to this study, this one employs the Servqual method to ascertain the size of the perception gap between actual and perceived customer expectations, as well as the AHP method to embed the Servqual dimension variable attribute in terms of attribute importance. The study's findings suggest which service variable attributes are least capable of satisfying clients and their relative importance in terms of improvement.

Then, research on the integration of servqual and AHP was conducted to evaluate Dekranasda's service quality of Rembang Regency. This research aimed to evaluate the quality of customer service at the Dekranasda of

Rembang Regency, using the analytical Hierarchy Process (AHP) to weight each dimension and criterion and the Servqual analysis method to ascertain consumer perceptions and expectations across the five servqual dimensions. The study determined that Dekranasda needed to enhance 10 service criteria to improve the institution's service quality (Mahmudi, 2021).

The Healthy Catering is a subsidiary of PT. Al EHSAN AMS provides food and beverage services, including catering to factory employees. At the moment, the company employs approximately 360 people. The company is based in South Bekasi, Bekasi City.

This research was conducted in order for researchers to identify service quality attributes in terms of five service quality dimensions, the value of the difference between expectations and perceptions (gaps) for each attribute using the Servqual method, prioritize recommendations for improvement using the Analytical Hierarchy Process, and then provide recommendations for attributes with a large gap between expectations and perceptions.

Based on the problem formulation, it can be inferred that the following are the outputs of this study's hypothesis:

H0 = a) Five dimensions of service quality variables do not affect customer service at The Healthy Catering. b) The Servqual and AHP methods generate different recommendation rating values.

H1 = a) Five dimensions of service quality variables: reliability, tangible, empathy, assurance, and responsiveness positively affect customer service at The Healthy Catering. b) The Servqual and AHP methods generate the same recommendation rating values.

MATERIALS AND METHODS

This research is a descriptive evaluation study (E, Barlian). The following steps are included in the implementation of this research: 1) planning the research, 2) identifying problems, 3) developing and assembling research instruments (questionnaires), 4) collecting data, 5) testing data, 6) processing and analyzing data, and 7) drawing conclusions. This study employs two instruments, the servqual, and the AHP. The researchers collected data using four methods: interviews, observation, distribution of questionnaires, and literature review.

The population is a category of items or persons that share similar characteristics and qualities, based on the criteria established by the researcher for subsequent study. Berlian (2016) asserted that the population could take the form of

creatures or people, or it can take the form of all objects and items contained within the population. The population for this study is the consumer of The Healthy Catering service, as determined by a simple random sampling technique. To estimate the minimum sample size, the researchers used the Slovin formula as described in Suryani's book (Suryani & Hendryadi, 2016), namely:

$$n = \frac{N}{1 + Ne^2} = \frac{360}{1 + 360(0.1)^2} = 78.2608$$

As a result, it can be determined that this study's sample consisted of 80 respondents. The validity, reliability, gap value analysis, and weighting using the analytical hierarchy process (AHP) will all be used to analyze the data in this research.

RESULTS AND DISCUSSION

1. Validity Test

In this study, the validity of the R_{count} value of each attribute with R_{table} was determined. This study suggests that the R_{count} value for all the attributes examined is 22, with the expectations and perceptions column indicating a greater value than R_{table} , indicating that the survey's questions are valid.

2. Reliability Test

Cronbach Alpha was used in this study utilizing SPSS software and yielded a result of 0.812 and 0.854 for the expectation and perception attributes, respectively. These findings indicate that the instrument employed in this study is reliable or trustworthy, as the value achieved is more than 0.6.

3. Recapitulation of the Calculation of the Service Quality Gap

The service quality gap value of The Healthy Catering was computed by subtracting from the mean score of perception and expectation that consumers have filled in. The gap value is shown in Table 1. A negative score indicates that the service results are of low quality and high satisfaction. In contrast, a positive value indicates that the service results are high quality and high satisfaction.

Table 1. Recapitulation of the Calculation of the Service Quality Gap

No	Dimension	Mean Value		Gap	Note
		Perception	Expectation		
1	Tangibles	3.671	3.557	0.114	high quality and high satisfaction
2	Reliability	3.585	3.715	-0.130	low quality and low satisfaction

3	Responsiveness	3.571	3.471	0.100	high quality and high satisfaction	1	1	1	1	1	1
4	Assurance	3.747	3.556	0.191	high quality and high satisfaction	1	1	1	1	1	1
5	Empathy	3.571	3.750	0.179	low quality and low satisfaction	1	1	1	1	1	1

Source: (Laurichela, 2021)

4. Analytical Hierarchy Process (AHP)

The next step is to use the Analytic Hierarchy Process (AHP) to assign weights to the research attribute gaps. The data used to establish the weight of each attribute is based on responses to a weighting questionnaire completed by respondents of The Healthy Catering's management, specifically the President Director, Operations Manager, and Human Resources Manager.

5. Calculation of Weighting

The weight assigned to each criterion is calculated by comparing the relative importance of the criteria (pairwise comparison). Based on the distribution of weighting questionnaires to management, pair comparison values are calculated. Table 2 displays the results of the calculations for the comparison matrix between criteria.

Table 2. Matrix of comparison among criteria

	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Tangibles	1.00	1.44	0.585	0.14	0.69
Reliability	0.69	1.00	0.822	0.13	1.44
Responsiveness	1.71	1.21	1.000	0.59	0.69
Assurance	7.00	7.61	1.671	1.00	5.59
Empathy	1.44	0.69	1.442	0.17	1.00
Total	11.8	11.9	5.520	2.05	9.42
	46	64		1	2

Source: (Laurichela, 2021)

The matrix normalization calculation is then performed by dividing each element by the total element.

Table 3. Normalization of the paired comparison matrix

	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Tangibles	0,084	0,121	0,106	0,070	0,074
Reliability	0,059	0,084	0,149	0,064	0,153
Responsiveness	0,144	0,102	0,181	0,292	0,074
Assurance	0,591	0,636	0,303	0,487	0,594
Empathy	0,122	0,058	0,261	0,087	0,106

Source: (Laurichela, 2021)

6. Consistency Test of Pairwise Comparison Matrix Among Criteria at the Consistency Stage

In order to find the maximum lamda value, a consistency test is run. Tables 2 and 3 are examples of this. The eigence vector is multiplied by the total of each alignment comparison matrix member. The multiplication results are then summed to get a maximum lambda of 5.43318. The matrix includes 5 primary criteria, which result in the following consistency index (CI) value:

$$CI = \frac{\lambda_{max} - n}{(n-1)} = \frac{5.43318 - 5}{(5-1)} = 0.108295$$

$$CR = \frac{CI}{RI} = \frac{0.108295}{1,12} = 0.0966$$

The computation results obtain a CR value of 0.1 (10%), indicating that the assessment preference is consistent.

7. Consistency Test of Pairwise Comparison Matrix Among Sub-criteria

The following is the eigenvector calculation in the comparison matrix among sub-criteria on the Empathy criteria.

Table 4. Pairwise comparisons with normalized eigen vectors

1.000	3.302	1.747	0.509	1.527
0.303	1.000	0.275	0.126	0.379
0.572	3.634	1.000	0.365	1.094

Source: (Laurichela, 2021)

The previous multiplication results are then combined to provide 3.05833.

$$CI = \frac{\lambda_{max} - n}{(n-1)} = \frac{3.05833 - 3}{(3-1)} = 0.029165$$

$$CR = \frac{CI}{RI} = \frac{0.029165}{0.58} = 0.053027272$$

The assessing preference is consistent because the CR < 0.1 (10%). When the Consistency Ratio (CR) for each comparison matrix is calculated, it is evident that the CR value for each comparison matrix among sub-criteria for each criterion is less than 0.1. These findings suggest that management's assessment of each sub-criteria is consistent,

implying that the respondent's assessment is compatible with actual conditions.

8. Global Weight Calculation

According to the analysis's results, the Assurances criteria have the highest weight value at 0.522197516, while Tangibles criteria have the lowest weight value of 0.090826882.

9. Calculation of Weighted Servqual Value

Attribute Weighted Servqual Value $A1 = 0.200 \times 0.027093539 = 0.005418708$. According to the analysis's results, the Responsiveness Dimension has the highest average weighted gap, with a weighted mean of 0.0075806, followed by the Tangibles Dimension's weighted mean gap of 0.00177888, and then the Reliability Dimension's weighted mean gap of -0.0029413, the Assurance Dimension's weighted mean gap of -0.0057629, and last, the Empathy Dimension's weighted mean gap of -0.0117

Attribute values with gap values greater than 0 indicate that the service qualities provided were sufficient to meet consumer expectations. However, these outcomes still need to be enhanced to meet consumer expectations truly. Meanwhile, a positive gap indicates that consumer expectations are lower than perceptions. Consumer expectations have not been met by the negative quality gap. It also indicates that the service provider has met consumer expectations. As a result, management should maintain or improve service performance on these qualities. AHP is used to calculate the weight for each criterion. Finally, the weighted gap value is calculated by multiplying the gap value of each characteristic by each weight. The weighted gap value with the most significant attribute gap value is shown in Table 5.

Table 5. Highest Weighted Servqual Value

No	Variable	Sub Criteria Weight	GAP	Weight ed Gap	Prio rity
1	E1	0.064584	-	-	1
		9	0.37	0.02421	
2	R2	0.006011	-	-	5
		4	0.35	0.00210	
3	R4	0.051168	-	-	2
		0	0.33	0.01726	
4	E3	0.046259	-	-	3
		5	0.27	0.01272	
5	R1	0.005208	-	-	6
		18	0.26	0.00136	

6	RV2	0.021298	-	-	4
		48	0.15	0.00319	
			0	4	

Source: (Laurichela, 2021)

The authors provide the following recommendations for improvements to The Healthy Catering based on the results of the weighted gap analysis assessment:

- E1 (Waitress serves with a greeting, smile, and friendly and attentive).
- R4 (Delivery of catering food on time).
- E3 (Truthfulness in prioritizing the interests of consumers).
- RV2 (Employees are willing to answer complaints and suggestions from consumers).
- R2 (Consumers can request certain foods).
- R1 (Using environmentally friendly packaging)

CONCLUSION

Researchers can draw several conclusions based on the research findings, including the following: 1) Obtained five criteria based on the dimensions of service quality, namely Reliability, Empathy, Tangibles, Assurance, and Responsiveness; 2) The gap between perception and expected value was calculated using the Servqual method, with the six highest gap values being E1 (-0.375), R2 (-0.350), E3 (-0.275), and R1 (-0.263) attributes; 3) obtained the weight value for each criterion and sub-criteria calculated by the AHP method; 4) The weighted Servqual calculation shows the results in the form of priority improvements for attributes that have a large gap; 5) The priority in repair from the highest priority to the lowest are E1, R4, E3, RV2, and R2 attributes.

The researchers recommend that 1) businesses implement the recommendations for improving service attributes in this study to improve service quality at The Healthy Catering; 2) that subsequent researchers develop research by adding analysis to other gaps, not limited to the gaps studied in this study, or only limited to the gap between consumer expectations and perceptions.

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