A Study of Customer Satisfaction in Administration Procedure at Food Testing Laboratory by SERVQUAL Method

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ABSTRACT

Food Testing Laboratory is the agency that provides services of testing samples of the Original farm. The measurement of customer satisfaction in this instance has not been detected according to the value of the interests of the customer. This study aims to learn the level of customer satisfaction according to the views of customers and find what things need to be evaluated for quality improvement. The research on the methods of dimension 5 uses their Service Quality, i.e. reliability, Responsiveness, Assurance, empathy and also physical evidence. Customer satisfaction measurement is done with the dissemination of a questionnaire on 64 respondents. The results have been analyzed using SERVQUAL method and Diagram of Importance-Performance Analysis (IPA) that is processed using Microsoft Excel and SPSS Software obtained that 19% of customers have been feeling very satisfied with the services provided while 81% were satisfied. Quality improvement priority also needs to be done for 2-dimensional variable guarantee with priority improvements to the 9th variable.

Keyword: *Customer Satisfaction, Service Quality, Laboratory, Importance Performance Analysis Services.*

I. INTRODUCTION

At present, many institutions or agencies that sell competing services offer services to their customers. It does not rule out the possibility for agencies that sell products in the form of goods that offer consulting services that are included in the products they sell. This makes competition even tighter to provide customer satisfaction., especially companies engaged in services[1, 2]. there are separate demands for companies that determine "good" or not in serving customers, in terms of purchasing services and complaints related to services offered[3]. This has become a focal point for an institution or agency to carry out services[4].

Food Testing Laboratory is a government-owned laboratory located in the East Jakarta area that provides testing services with a limitation of Animal-based Food Products. The Food Testing Laboratory can provide service consultations either by telephone, e-mail or direct discussion[5]. Consultation provided is in the form of technical consultations and also financial consultations (Testing Costs)[6, 7]. The Food Testing Laboratory will issue a test result certificate for the company within 10-15 working days. Until now, the Food Testing Laboratory has calculated customer satisfaction, but there has been no result of customer satisfaction according to the interests of customers[8-10]. Within 9 months, from January to December 2018 there were around 33 cases of complaints, the majority of which were compulsory regarding the time gain in making certificates or writing errors in the results of certificates. This is the basis of the research goal to determine the level of customer satisfaction also knowing customer satisfaction based on the views of the interests of customers[11, 12], especially for the youth generation[13, 14].

Based on the background above the problems in this study exist in no measurement of customer satisfaction based on the views or values of the interests of the customer[15], so the objectives in this study include :

1. Knowing the level of customer satisfaction with administrative services in the Food Testing Laboratory.
2. Know what things need to be evaluated in order to improve administrative services to customers in the Food Testing Laboratory.

In this study certainly has limitations, the limitations of this study only discuss customer satisfaction with services in the Food Testing Laboratory. This study will not discuss costs and its quantitative.

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II. METHODOLOGY

The research on the methods of dimension 5 uses their Service Quality, such as Reliability, Responsiveness, Assurance, Empathy, and Physical evidence. Customer satisfaction measurement is done with the dissemination of a questionnaire on 64 respondents.

III. RESULTS AND DISCUSSION

In collecting data, the author will tabulate the total results from the data obtained through the distribution of questionnaires to 64 customers, namely recapitulation of the assessment of customer expectations of service and also the actual results received by customers from the services provided.

Table 1. Recapitulation of customer expectations assessment

Questions	Number of answers					Total
	Very unimportant	Unimportant	Quite important	Important	Very Important	
	(1)	(2)	(3)	(4)	(5)	
Variable 1	0	0	0	26	38	64
Variable 2	0	0	0	33	31	64
Variable 3	0	0	0	36	28	64
Variable 4	0	0	0	5	59	64
Variable 5	0	0	0	5	59	64
Variable 6	0	0	0	22	42	64
Variable 7	0	0	0	43	21	64
Variable 8	0	0	0	25	39	64
Variable 9	0	0	0	32	32	64
Variable 10	0	0	0	12	52	64
Variable 11	0	0	0	12	52	64
Variable 12	0	0	0	26	38	64
Variable 13	0	0	0	43	21	64
Variable 14	0	0	0	22	42	64
Variable 15	0	0	0	15	49	64
Variable 16	0	0	0	32	32	64
Total	**0**	**0**	**0**	**389**	**635**	**1024**
Percentage	**0%**	**0%**	**0%**	**38%**	**62%**	

Table 2. Recapitulation of customer expectations assessment

Questions	Number of answers					Total
	Very unimportant	Unimportant	Quite important	Very unimportant	Unimportant	
	(1)	(2)	(3)	(4)	(5)	
Variable 1	0	0	0	64	0	64
Variable 2	0	0	0	64	0	64
Variable 3	0	0	0	57	7	64
Variable 4	0	0	0	54	10	64
Variable 5	0	0	0	49	15	64
Variable 6	0	5	20	39	0	64
Variable 7	0	0	39	25	0	64

Variable 8	0	0	15	49	0	64
Variable 9	0	0	46	18	0	64
Variable 10	0	0	10	54	0	64
Variable 11	0	0	6	48	10	64
Variable 12	0	0	34	20	10	64
Variable 13	0	0	39	25	0	64
Variable 14	0	0	10	54	0	64
Variable 15	0	0	46	11	7	64
Variable 16	0	0	0	57	7	64
Total	**0**	**5**	**265**	**688**	**66**	**1024**
Percentage	**0.0%**	**0.5%**	**25.9%**	**67.2%**	**6.4%**	

In table 2 there are 0.5% of customers who feel dissatisfied with the performance that has been given. This dissatisfaction occurs in variable 9 related to the timeliness in making certificate of test results. In this study the validity test for the Hopeful Questionnaire and also the Actual Questionnaire were used to measure customer satisfaction with the following results:

Table 3. Test the Validity of the Hopeful Questionnaire

Variable	Value of r (Calculate)	The value of r (Table) n = 64 α 0.05	Status
Variable 1	0.680	0.246	Valid
Variable 2	0.753	0.246	Valid
Variable 3	0.753	0.246	Valid
Variable 4	0.711	0.246	Valid
Variable 5	0.711	0.246	Valid
Variable 6	0.680	0.246	Valid
Variable 7	0.874	0.246	Valid
Variable 8	0.729	0.246	Valid
Variable 9	0.800	0.246	Valid
Variable 10	0.652	0.246	Valid
Variable 11	0.652	0.246	Valid
Variable 12	0.680	0.246	Valid
Variable 13	0.874	0.246	Valid
Variable 14	0.680	0.246	Valid
Variable 15	0.652	0.246	Valid
Variable 16	0.680	0.246	Valid

Table 4. Test the Validity of the Actual Questionnaire

Variabel	Value of r (Calculate)	The value of r (Table) n = 64 α 0.05	Status
Variable 1	0.578	0.246	Valid
Variable 2	0.678	0.246	Valid
Variable 3	0.541	0.246	Valid
Variable 4	0.604	0.246	Valid

Variable 5	0.479	0.246	Valid
Variable 6	0.656	0.246	Valid
Variable 7	0.690	0.246	Valid
Variable 8	0.408	0.246	Valid
Variable 9	0.727	0.246	Valid
Variable 10	0.786	0.246	Valid
Variable 11	0.690	0.246	Valid
Variable 12	0.515	0.246	Valid
Variable 13	0.794	0.246	Valid
Variable 14	0.690	0.246	Valid
Variable 15	0.605	0.246	Valid
Variable 16	0.477	0.246	Valid

After the Expectation Questionnaire and the Actual Questionnaire are Valid, the Reliability test is conducted. The following are the results of the Reliability Test:

Table 5. Reliability Test

Data Type	Valid Number of Variables	The value of α is calculated	Range Alpha Cronbach	Status
Expectation	16	0.93	> 0.6	Reliabel
Actualization	16	0.88	> 0.6	Reliabel

In the Statistical Test two tests were carried out namely the Adequacy Test and the Uniformity Test Data on the expectation questionnaire and the actual questionnaire, along with the results of the two Tests[8, 16]:

- Test of Expectation Questionnaire Data Adequacy

$$N' = \left[\frac{\frac{k}{s}\sqrt{N \sum x^2 - (\sum x)^2}}{\sum x} \right]^2 \quad = \left[\frac{\frac{2}{0.05}\sqrt{64(1.165.542) - (74.338.884)}}{8622} \right]^2$$

$$N' = \mathbf{5,51 = 6}$$

Data Adequacy Test Results compared to the two questionnaires show the N value is smaller than N. So that the collected data is declared sufficient and representing the population.

Table 6. Data Uniformity Test on the Expectation and Actual Questionnaire

Questionnaire n = 64, trust 95%					Note
I-variable	LCL	Min data	Max Data	UCL	
1	6.40	7	10	10.54	Uniform
2	6.25	7	9	10.37	Uniform
3	5.74	7	10	11.04	Uniform
4	7.05	7	10	10.51	Uniform
5	6.79	7	10	11.12	Uniform
6	5.11	6	10	10.92	Uniform
7	5.41	7	10	10.53	Uniform
8	6.75	8	10	10.87	Uniform
9	5.54	7	10	10.37	Uniform

10	6.55	7	10	10.95	Uniform
11	5.88	7	10	10.81	Uniform
12	6.47	7	10	10.47	Uniform
13	5.81	7	9	9.97	Uniform
14	6.32	7	10	10.83	Uniform
15	5.75	7	10	10.84	Uniform
16	6.89	8	10	10.67	Uniform

3.1 Calculation of Score and Value of Hope Questionnaire and Actual Questionnaire

After processing, the data will be calculated by the number of Scores and Expectations and the actual value. The amount is categorized according to the number of scores calculated based on the answers multiplied by the weight scale on the questionnaire such as the following tebel:

Table 7. Satisfaction / Interest Score Table

Category	Score (Σ Respondent x Scale)	Standard value
Very Important/Satisfied	64 x 5 = 320	> 256
Important/Satisfied	64 x 4 = 256	192 - ≤ 256
Important enough/Satisfied	64 x 3 = 192	129 - ≤ 192
Unimportant/Satisfied	64 x 2 = 128	65 - ≤ 128
Very Unimportant/Satisfied	64 x 1 = 64	0 - ≤ 64

Table 8. Total Score and Expectation Value

Question Item	Score Value (ΣY_i)	Expectation Value (Y_i)	Conclusion
1	294	4.59	Very Important
2	287	4.48	Very Important
3	284	4.44	Very Important
4	315	4.92	Very Important
5	315	4.92	Very Important
6	298	4.66	Very Important
7	277	4.33	Very Important
8	295	4.61	Very Important
9	288	4.50	Very Important
10	308	4.81	Very Important
11	308	4.81	Very Important
12	294	4.55	Very Important
13	277	4.33	Very Important
14	298	4.66	Very Important
15	305	4.77	Very Important
16	288	4.50	Very Important

Table 9. Amount of Actual Scores and Values

Question Item	Score Value (ΣYi)	Expectation Value (Yi)	Conclusion
1	246	3.84	satisfied
2	244	3.81	satisfied
3	249	3.89	satisfied
4	250	3.91	satisfied
5	261	4.08	Very satisfied
6	217	3.39	satisfied
7	230	3.59	satisfied
8	268	4.19	Very satisfied
9	221	3.45	satisfied
10	256	4.00	satisfied
11	230	3.59	satisfied
12	246	3.84	satisfied
13	225	3.52	satisfied
14	253	3.95	satisfied
15	227	3.55	satisfied
16	266	4.16	Very satisfied

Calculation of SERVQUAL Value

The following is a recapitulation of the SERVQUAL value of all variables:

Table 10. SERVQUAL Value

Question	Actual Value	Expectation Value	Gap (SERVQUAL Score)
Variable 1	3.84	4.59	-0.7463
Variable 2	3.81	4.48	-0.6675
Variable 3	3.89	4.44	-0.5494
Variable 4	3.91	4.92	-1.0138
Variable 5	4.08	4.92	-0.8419
Variable 6	3.39	4.66	-1.2694
Variable 7	3.59	4.33	-0.7363
Variable 8	4.19	4.61	-0.4225
Variable 9	3.45	4.50	-1.0469
Variable 10	4.00	4.81	-0.8100
Variable 11	3.59	4.81	-1.2163
Variable 12	3.84	4.55	-0.7063
Variable 13	3.52	4.33	-0.8144
Variable 14	3.95	4.66	-0.7069
Variable 15	3.55	4.77	-1.2231
Variable 16	4.16	4.50	-0.3438

From the above calculation the biggest gap value is found in variable 6 which is equal to -1.27. This gap occurs because the actualization given to customers is not as expected.

3.2 Importance Performance Analysis (IPA) Diagram

Quadrant I (Concentrate here), is an area that contains factors that are considered important by the customer but in fact the performance performed is not in accordance with customer expectations. Attributes in this quadrant must increase[17]. In quadrant I there are 3 variables, among others, variables 6.11 and 15.

The timeliness of making a test certificate that is included in quadrant I shows the stronger or more priority variable 6 is to make improvements in terms of service quality. Whereas what happened to variables 11 and 15 needed to be improved a little.

Quadrant II (Keep up the good work), In quadrant II there are 4 variables, namely variables 4.5,10 and 14. Data security in conducting testing in the XYZ Laboratory becomes an achievement that has been owned. The distribution of certified test parameters is also one of the achievements in the service that has been carried out by XYZ Laboratory so that consumers who do the testing are not worried because the results have been verified by KAN (National Accreditation Committee)[18-20]. Hygiene and manners applied to administrative services also affect achievement with cleanliness and courtesy provided that the customer feels comfortable and happy, so that the service at XYZ Laboratory has added value than the customers who come.
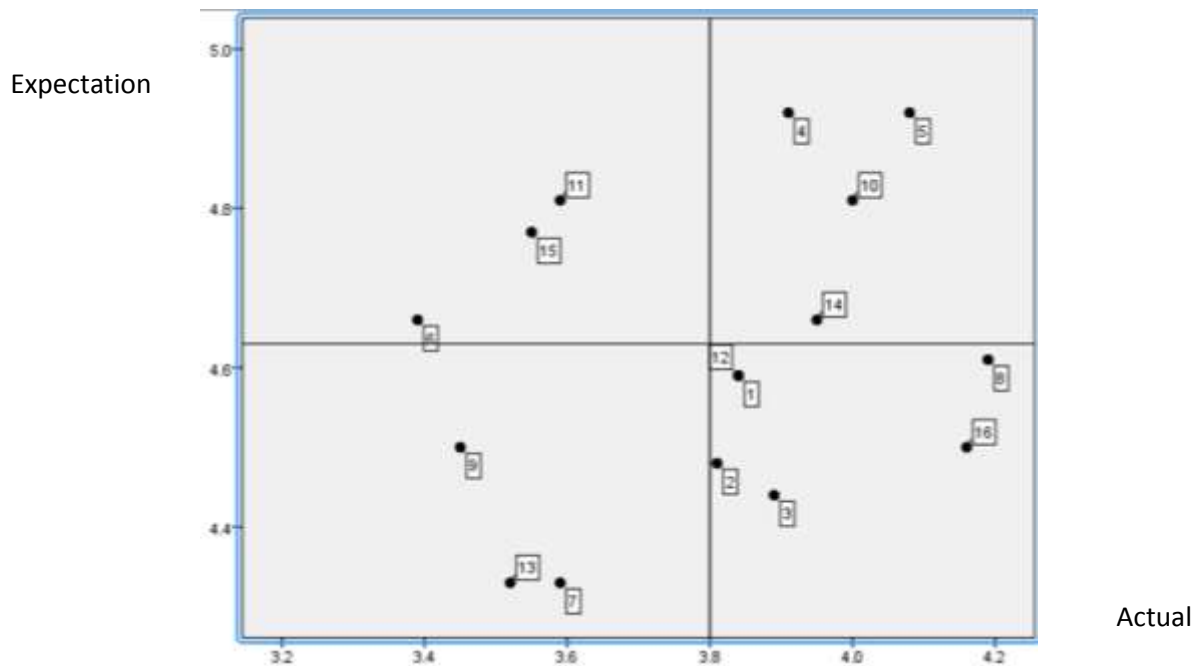

Figure 3. *Importance Performance Analysis* **Diagram**

Quadrant III (Low Priority), is a region that is considered less important by customers and its performance is indeed not too special. In this quadrant III variables number 9.13 and 7 are considered important by the customer and also the resulting performance is not satisfactory.

Quadrant IV (Possible to kill), In this quadrant there are 5 variables that are considered less important by the customer but the resulting performance exceeds customer expectations or can be said to be excessive.

IV. CONCLUSION

In this study the authors concluded that 19% of customers stated that "very satisfied" with the service received, while 81% stated "satisfied" with the service received. The results of the analysis rather than data processing can be concluded that the average SERVQUAL value than the expectation of customer expectations is 4.62 while the actuality or performance value is obtained by the SERVQUAL value of 3.80. If calculated by the SERVQUAL formula (Actual Value - Expectation Value) the Gap is obtained at -0.82. This gap occurs because the performance produced does not meet customer expectations. From all 16 variables used to measure customer satisfaction, the overall results are minus. The entire Gap is divided into 4 quadrants in the Science Chart discussed in the previous chapter. After being analyzed using the Science Chart, the main priority for improvement is in variables 6, 11 and 15. Priority number 1 is in variable 6 where the Gap value is -1,269. Variable 6 is timeliness in making the test results certificate where 0.5% of customers feel dissatisfied with the performance that has been given by the employee. The Food Testing Laboratory needs to do a number of factors that have been presented in the previous chapter, which factors most often cause inaccuracies in making the test results certificate. Then for other priority improvements, the step that needs to be done

is to analyze what factors are causing nonconformities, so that the Food Testing Laboratory can continue to improve the quality of services delivered to customers.

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