

ANALYSIS OF STUDENT SERVICE QUALITY WITH SERVQUAL METHOD, QFD, AND CONTINUOUS IMPROVEMENT

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ABSTRACT: Sekolah Tinggi Teknik (STT) Malang is one of College in Malang City. Service quality problems that students complain about include academic services, wi-fi facilities, and facility issues. This study aims to determine the current student service mapping with the SERVQUAL method, applicative suggestions based on the QFD method, and service improvements based on continuous improvement methods. The research was conducted by distributing questionnaires randomly to 250 students. The results showed that the attributes of adequate motorbike parking space, wifi/internet facilities, the ease of students submitting academic complaints, and the ease of submitting complaints on facilities were the main priorities for improvement. The main priority for improvement is educational services, such as providing face-to-face facilities and online media for submitting academic complaints.

Keywords: QFD, Continuous Improvement, Quality of Student Service, SERVQUAL

1. Introduction

Service quality is measured by following customer expectations and perceptions [1]. Essential aspects of service quality in the College include human resources, academic service quality, supporting facilities, and lecturers' active role in teaching and learning activities. [2][3][4][5]. Sekolah Tinggi Teknik (STT) Malang is one of College in Malang City. Some of the service problems that students complain about include academic services, wifi facilities, and facility problems. The SERVQUAL method determines student satisfaction scores based on the gap between perceived values and expectations [6]. QFD is a model aimed at fulfilling customer satisfaction based on input (voice of customer) on products or services [7]. QFD can also be used in determining the educational program model to be developed [8][9]. Continuous Improvement is a concept of continuous self-improvement or improvement to increase the quality of products or services. [10]. Continuous Improvement is used in higher education to improve services to create a quality learning system [11][12]. Using the SERVQUAL, QFD, and Continuous Improvement Methods in this study resulted in priority for student service attributes that needed repairs and could apply these improvements.

2. Research Methods

The instrument in this study was a questionnaire distributed to students via the Google form. The sample is 250 students with a

population of 825 students. The data type used is primary data by conducting interviews with students and campus management at STT Malang. Data collection methods include observation and surveys. Observations directly saw the condition of student services in the field and surveys in the form of questionnaires to students—data analysis by testing the reliability and validity of the instrument. Furthermore, SERVQUAL analysis divides the attributes into four quadrants with Cartesian diagrams, QFD with the House of Quality, and Continuous Improvement with the PDCA method (Plan, Do, Check, Action).

3. Result And Discussion

The results of the study based on the characteristics of the gender of the respondents showed that there were 134 male respondents (53.8%) and 115 female respondents (46.2%). The results of the study based on the characteristics of the study program showed that the Bachelor of Electrical Engineering study program totalled 106 students (42.6%), the Industrial Engineering undergraduate study program totalled 89 students (35.7%), the Bachelor of Civil Engineering study program numbered 15 students (6%), the Bachelor of Industrial Engineering study program totalling 15 students (6%), Associate's Degree Electrical Engineering study program totalling 22 students (8.8%), and the rest of the Associate's Degree Civil Engineering study program totalling two students (0.8%).

Table 2 shows the results of the instrument validity test. The r count value is considered eligible or valid if it is more significant than

0.124, which is the R table. R table 0.159 was obtained from the questionnaires used to validate 249 (N = 249) with a 95% confidence level.

Table 1 Research Instrument Validity Test

No.	Service Quality Variables	Percept	Expecta
		ion(x)	tion (y)
X1 Tangibles			
X1.1	Adequate classrooms are available for teaching and learning activities	0,873	0,858
X1.2	There is a Lab. as a place for student practice	0,852	0,873
X1.3	Cool classroom temperature	0,861	0,907
X1.4	Bright classroom lighting	0,801	0,789
X1.5	Adequate motorbike parking space	0,457	0,837
X1.6	Fast wifi/internet facility	0,413	0,734
X1.7	Clean campus environment	0,789	0,839
X2 Reliability			
X2.1	Quick delivery of academic information	0,921	0,908
X2.2	The available literature is sufficient	0,919	0,931
X2.3	Lecture material can be well-received	0,915	0,902
X2.4	Class schedule on time	0,892	0,906
X3 Responsiveness			
X3.1	There is a substitute class if the lecturer is not present during lecture hours	0,840	0,862
X3.2	Lecturers are easy to find for conducting academic guidance	0,854	0,879
X3.3	Alertness of Employees (Security) in maintaining security	0,870	0,900
X3.4	Alertness of Employees (Security) in arranging parking	0,416	0,830
X3.5	Alertness of Employees (Cleaning Officers) in maintaining the cleanliness of the toilet	0,841	0,876
X3.6	Employees are friendly to students	0,858	0,844
X4 Assurance			
X4.1	Employees are willing to provide lecture information to students	0,894	0,891
X4.2	Guarantee of confidentiality of student data	0,862	0,881
X4.3	Clarity in providing information related to payment	0,902	0,883

X4.4	Students feel safe while attending lectures	0,905	0,899
X4.5	Students feel comfortable while attending lectures	0,916	0,865
X5 Empathy			
X5.1	Employees are polite to students	0,782	0,795
X5.2	There is a suggestion box to accommodate complaints	0,873	0,845
X5.3	There is a poll for student ministry	0,889	0,878
X5.4	There is a questionnaire on student services at the end of the semester	0,850	0,831
X5.5	Ease of students submitting academic complaints	0,512	0,893
X5.6	Ease of students submit complaints about facilities	0,498	0,853
X5.7	Student complaints are responded to quickly	0,881	0,905
X5.8	Ease of submitting student complaints	0,897	0,908

Based on Table 1, it can be stated that all statement items used to measure indicators of each SERVQUAL dimension are valid because the correlation value of each SERVQUAL indicator to the total value of the SERVQUAL dimension is above the data validity limit, which is 0.159. It can be concluded that each attribute used in the questionnaire, both the level of perception and expectation, is valid and can be used as a research tool. The results of the reliability test can be seen in Table 2

Table 2 Instrument Reliability Test Results

No	Service Quality Variables	Perception (x)	Expectation(y)
X1	<i>Tangibles</i>	0,857	0,924
X2	<i>Reliability</i>	0,932	0,932
X3	<i>Responsiveness</i>	0,876	0,933
X4	<i>Assurance</i>	0,936	0,929
X5	<i>Tangibles</i>	0,911	0,951

The general agreement on reliability that is considered satisfactory is ≥ 0.700 . If the alpha value > 0.7 means sufficient reliability, the alpha > 0.80 suggests that all items are reliable and all tests consistently have strong reliability. The reliability test results based on Table 2 show that in each dimension, both customer perception and customer expectations have a Cronbach alpha value between 0.800 and 0.999, which means that

the reliability test is acceptable or the question instruments used in the research are pretty reliable.

5. SERVQUAL Analysis

SERVQUAL analysis results can be seen in Table 3. SERVQUAL analysis to determine the value of the student service gap by calculating the difference in the value of perceptions and expectations. Based on Table 3 of the SERVQUAL Analysis Results, all gap values are <1, meaning that students are unsatisfied with the current services.

Table 3 SERVQUAL Analysis Results

Attribu tes	Percep tion	Expect ation	GAP	Attribu tes	Percep tion	Expect ation	GAP
X1.1	3,51	4,03	-0,52	X3.5	3,75	4,04	-0,29
X1.2	3,38	4,06	-0,68	X3.6	3,54	4,08	-0,55
X1.3	3,23	3,97	-0,74	X4.1	3,60	4,11	-0,51
X1.4	3,90	4,06	-0,16	X4.2	3,87	4,10	-0,23
X1.5	2,31	4,08	-1,77	X4.3	3,35	4,06	-0,71
X1.6	1,69	4,21	-2,52	X4.4	3,90	4,14	-0,24
X1.7	3,83	4,11	-0,28	X4.5	3,73	4,15	-0,42
X2.1	3,25	4,00	-0,76	X5.1	3,71	4,07	-0,36
X2.2	3,33	3,90	-0,58	X5.2	3,42	4,06	-0,64
X2.3	3,61	4,12	-0,50	X5.3	3,30	3,93	-0,63
X2.4	3,76	4,09	-0,33	X5.4	3,33	3,96	-0,63
X3.1	3,61	3,96	-0,35	X5.5	2,24	4,05	-1,81
X3.2	3,66	4,05	-0,39	X5.6	2,24	4,10	-1,86
X3.3	3,72	4,06	-0,34	X5.7	2,82	3,91	-1,09
X3.4	2,44	3,98	-1,54	X5.8	2,95	3,94	-0,99

6. Cartesian Diagram

Cartesian diagram The Cartesian diagram determines which services are prioritised in repair based on the division of 4 quadrants. The results of the Cartesian diagram analysis can be seen in Figure 1. Based on Figure 1, the Cartesian diagram, the service attributes that are included in quadrant I and become a priority for improvement are the attributes of sufficient motorcycle parking space (X1.5), fast wifi/internet facilities (X1.6), ease of students submitting academic complaints (X5.5) and Ease of students submitting facility complaints (X5.6)

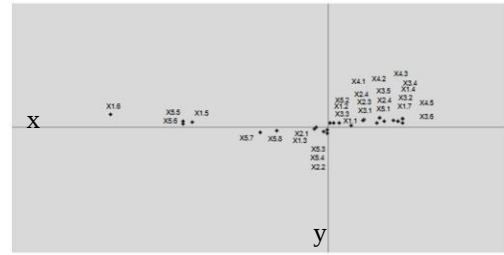


Figure 1 Cartesian Diagram of Service Quality

7. Fishbone Diagram

Based on the Cartesian diagram, four attributes are included in quadrant I, which means they are the top priorities for improvement. Before being processed into QFD analysis, a Fishbone Diagram was made to determine the factors influencing student dissatisfaction, as presented in Figure 2.

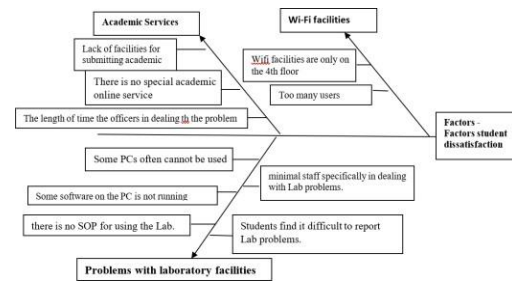


Figure 2 Fishbone Diagram

8. Pareto Charts

The Pareto chart is based on the attributes included in quadrant 1, which has the highest gap value. This means that the service is unsatisfactory and becomes a priority for improvement. Gap values and cumulative percentages can be seen in Table 4 of repair attribute gap values. Then, a Pareto diagram is made, as shown in Figure 2. Based on the Pareto diagram in Figure 2, the highest attribute is wifi facilities with a percentage of 32%, the attribute of the ease of students submitting academic complaints and the attribute of the ease of students submitting complaints of facilities each by 23% and the attribute of the parking lot adequate motor by 22%.

Table 4 Percentage of Gap Values

No	Attribute	Gap Value	Percentage	Cumulative Percentage
1	Fast wifi/internet facility	2,52	32%	32%
2	Ease of students	1,86	23%	55%

	submit complaints about facilities			
3	Ease of students submitting academic complaints	1,81	23%	78%
4	Adequate motorbike parking space	1,77	22%	100%
	Total	7,96	100%	

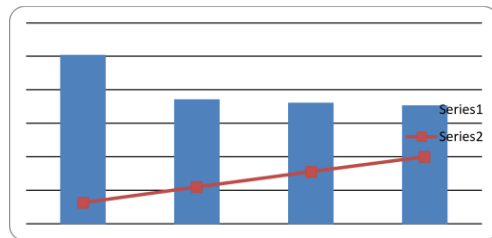


Figure 3 Pareto Chart of Improvement Percentage

9. QFD Analysis

Based on the Pareto diagram analysis, a technical response is made. The next step after the attributes of consumer needs and expectations are stated in the whats attribute, then a hows attribute technical response is prepared. In the House of Quality, technical responses are prioritised based on the difficulty of the technical response, the target row weight and the technical response weight. Technical responses are identified based on the most necessary technical responses to meet consumer requirements and need improvement. The technical response weight values can be seen in Table 5.

Table 5 Technical Response Weight

No.	Attribute	Technical Response Weight	Priority
1	Create a new, wider parking area	1,71	5
2	Provide a roof over the parking area	0,57	8
3	Added officers to manage parking	1,71	6
4	Adding wifi facilities on every 1st, 2nd, 3rd floor and 4th floor	1,89	4
5	Create a WhatsApp number	7	1

	specifically for academic services		
6	Add face-to-face academic service personnel to the room	2,7	2
7	Adding facilities for submitting student complaints through the Siakad account	0,9	7
8	Adding lab assistant personnel. For lab facilities. problem	2,7	3

10. Continuous Improvement Analysis

Based on the results of the Quality Function Deployment analysis, several suggestions exist on how to improve the attributes [13]. The results of the QFD, which has the highest technical response weight, will be analysed using the Continuous Improvement method with the PDCA concept (Plan, DO, Check, Action). As for the improvements made based on the weight of the technical response and management considerations of STT Malang in a pandemic, a technical reaction was chosen, namely improving academic services. Improvement efforts in improving academic services are:

1. Create a WhatsApp number specifically for academic services
2. Add face-to-face academic service personnel to the room

11. Conclusion

Based on the research results, the study results show that the average value of the service gap is <1; this means that students are not satisfied with all the student services provided. The distribution of attributes shows four attributes being the top priority in improvement, namely the characteristics of adequate motorbike parking space (X1.5), fast wifi/internet facilities (X1.6), ease of students submitting academic complaints on facilities (X5.5) and ease of students submitting complaints on facilities (X5.6). Improvements include providing a room for consulting students for educational services and online service facilities for students who cannot come to campus.

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