



Journal of Industrial System Engineering and Management Vol 3 No 2 December, 2024

Analysis of Customer Satisfaction on Service Quality at ‘TRANS JOGJA’ Bus Stop Using a SERVQUAL (Service Quality) and House of Quality (HOQ)

Famelga Clea Putri^{1*}, Riska Iva Riana², Yan Herdianzah³

¹Department of Industrial Engineering, Tanjungpura University, Indonesia

²Department of Automotive Engineering, Makassar State University, Indonesia

³Department of Industrial Engineering, Muslim University of Indonesia, Indonesia

ARTICLE INFORMATION

Article history:

Received: August 24, 2024

Revised: October 6, 2024

Accepted: December 30, 2024

Keywords:

**Bus Stop
Customer,
House of Quality,
Satisfaction,
Service Quality**

ABSTRACT

Yogyakarta is a city that is often called a miniature of Indonesia, has a multitude of features. Starting from governance to many other features. Trans Jogja is one of the BRT products for the city of Jogja which is said to have been initially built to provide clean, neat and comfortable city transportation for everyone. However, Trans Jogja, which is heralded as an improvement in public transportation service modes, is in reality still less than optimal. In order to meet the expectations of prospective passengers at bus stops, service improvements and innovations are needed. In this research, Trans Jogja bus stops will be identified using the SERVQUAL and House of Quality methods. The cause of customer dissatisfaction in the Servqual analysis is that from the results of data processing it was found that there was a gap in all service dimensions at the Trans Jogja bus stop. Determining the highest to smallest improvement priorities to increase customer satisfaction in the House of Quality analysis is conducting training to improve performance, evaluating staff performance, updating schedules and daily departure routes clearly and in detail, controlling the availability of service facilities, implementing SOPs for staff, Providing a box for suggestions and criticism, and Providing supporting facilities for the safety and smooth running of Trans Jogja bus stop users.

*Corresponding Author

Name: Riska Iva Riana

E-mail: riska.iva.riana@unm.ac.id

This is an open-access article under the CC BY 4.0 International License
© JISEM (2022)



© 2024 Some rights reserved

INTRODUCTION

Land transportation in Indonesia is the most important means of advancing the national economy. Bus rapid transit (BRT) is a land transportation bus system that is fast, comfortable, safe and timely in terms of infrastructure, vehicles and schedules. BRT can be used as an alternative means of transportation because it has better service quality than other buses [1]. In the BRT system, modal integration is carried out at bus stops and passengers get on and off quickly at stops, thereby saving travel time, which ultimately can improve the quality of bus services [2].

The city of Jogja, a city that is often called a miniature Indonesia, has a multitude of features. Starting from governance to many other features. Trans Jogja is one of the BRT products for the city of Jogja which is said to have been initially built to provide clean, neat and comfortable city transportation for everyone. However, Trans Jogja, which is touted as an improvement in public transportation service modes, is in reality still less than optimal. This is due to many factors, both technical and non-technical [3].

This can certainly make things difficult for passengers, especially tourists or tourists from outside the city of Yogyakarta. In order to meet the expectations of prospective passengers at bus stops, service improvements and innovations are needed. In this research, Trans Jogja bus stops will be identified using the SERVQUAL and House of Quality methods. The aim of this research is to examine the quality of services at Trans Jogja bus stops and to determine the level of satisfaction and needs of the community regarding the quality of service at Trans Jogja bus stops [4].

One component that a public bus must have is a stopping place. The facilities at the stopping place are shelter, seating, lighting, public telephone, route information and schedules [5]. Apart from that, stopping places are also expected to be easy to access, close to public toilets, close to places selling food and drinks, and safe states that in planning a stopping place, various points of view must be taken into account.

Users usually want a safe, comfortable and easily accessible stopping place. Bus drivers usually want a stop that is easy to see, easy to stop the bus, easy and fast for passengers to get on and off, and easy to leave when the bus leaves, or in other words high accessibility. Most research on stopping places is carried out by collecting data on good and bad components, but does not take into account the level of community needs and satisfaction and these components have the same influence on all users [6], [7], [8], [9]. As users, the public directly experiences the facilities available at the stopping point.

This shows that planning bus stops must be based on user needs. The public has an opinion about the quality of service at the stops they use. These opinions need to be analyzed so that we can find out the extent of the need and satisfaction for the facilities and services provided by officers at the stopping point [10], [11].

RESEARCH METHODS

- a. Design of Dimension Variables The service quality variables that will become consumer satisfaction variables at Trans Jogja bus stops are categorized based on five Servqual dimensions, namely tangible dimensions, reliability dimensions, empathy dimensions, assurance dimensions, and responsiveness dimensions [12].
- b. Validity and Reliability Test of Servqual Questionnaire The results of data processing using SPSS 17 Software showed that all questions were valid and reliable, so they can be used to measure consumer attitudes towards services at Trans Jogja bus stops [13].
- c. Dimension Weighting According to Consumers The results of the mean calculation show each mean of the 5 servqual dimensions [14].
- d. Servqual Method Data Processing The data obtained from respondents, namely data on expectations and perceptions of services, are used to calculate the gaps in each Servqual dimension [15].
- e. Analysis of Servqual Method Results From the results of data processing, it was obtained that there were gaps in all dimensions of Trans Jogja bus stop services .

- f. Determination of Voice of Customer Voice of Customer is the needs and desires of users regarding the services provided by Trans Jogja bus stops. Created based on statements in the questionnaire that have a gap score.
- g. Variable Grouping After obtaining the Voice of Customer, the next step is to group the variables based on the level of effort.
- h. Compilation of Technical Requirements Determination of Technical Requirements is based on the results of the Servqual method analysis, namely on the eleven variables that have the largest gap values.
- i. Compilation of the Relationship between Voice of Customer and Technical Requirements This section explains the relationship that can occur or may occur between Voice of Customer and Technical Requirements where the relationship is stated as strong, moderate, or weak.
- j. Determination of the Relationship of Technical Requirements (Correlation Matrix)
- k. Compilation of Operating Goal/Target Components This data is obtained from considerations regarding things that have been done so far to meet user needs and desires
- l. Compilation of Improvement Priorities to Increase Consumer Satisfaction Improvement priorities are arranged based on the Rank of Column Weight in the House of Quality Matrix.
- m. House of Quality

Design of Dimensional Variables

The service quality variables that will be the variables of prospective passenger satisfaction at the bus stop are categorized based on five Servqual dimensions, as in Table 1 as follows:

Table 1. Dimensions of Tangible

Variable of Quality Tangible
1. Lighting facilities at bus stops for night time are good
2. Equipment/instructions for disabled users are quite complete
3. Bus stops look clean and tidy
4. Supporting service facilities (waiting room and toilet) are complete
5. Bus stops have clear signs
6. Bus stop officers look neat and clean
7. Adequate internet facilities (hotspot)

Table 2. Dimensions of Reliability

Variable of Quality Reliability
1. Bus stop officers provide services carefully, cautiously, and on time
2. Services are provided quickly and accurately
3. Bus stop officers always help if users experience problems
4. Bus stop officers provide complete and clear route information
5. Bus stop officers provide complete and clear information to users before providing services
6. Speed in providing services

Table 3. Dimensions of Responsiveness

Variable of Quality Responsiveness
1. Bus stop officers give users the opportunity to ask questions and respond well
2. Bus stop officers respond to user complaints and handle them well and according to procedures

Table 4. Dimensions of Assurance

Variable of Quality Assurance
1. Trans Jogja bus stops provide a sense of security to their users (CCTV)
2. Trans Jogja bus stops have equipment that helps people with disabilities
3. Trans Jogja bus stops have professional officers

Table 5. Dimensions of Responsiveness

Variable of Quality Emphaty
1. The way bus stop staff speak when serving passengers
2. The way bus stop staff greet visitors and passengers politely and friendly

Validity and Reliability

Test of Servqual Questionnaire The results of data processing using SPSS 17 Software showed that all questions were valid and reliable, so they can be used to measure consumer attitudes towards services at Trans Jogja bus stops.

Dimension Weighting

According to Consumers The results of the mean calculation show that each mean is tangible = 0.2477 (25%), reliable = 0.1793 (18%), responsiveness = 0.2102 (21%), assurance = 0.1788 (18%), empathy = 0.1840 (18%). It can be seen that the tangible dimension (25%) is considered the most important by bus stop users. This means that if the satisfaction obtained by consumers is not good, it will cause great dissatisfaction.

Servqual Method Data Processing

The data obtained from respondents, namely data on expectations and perceptions of services, are used to calculate the gap of each Servqual dimension. The results of calculating the gap value of each variable can be seen in Table 2 and the results of calculating the overall gap can be seen in Table 3, as follows:

Table 6. Gap Value of Each Variable

Mean H	Mean P	Gap
4,19	3,20	-0,99
4,34	4,04	-0,30
4,35	3,74	-0,61
4,34	3,84	-0,50
4,25	3,65	-0,40
4,09	3,41	-0,68
4,25	3,95	-0,30
4,19	3,9	-0,29
4,13	3,2	-0,93
4,15	3,25	-0,90
4,17	3,48	-0,69
3,99	3,6	-0,39
4,25	3,85	-0,40
4,32	3,99	-0,33
4,33	4,01	-0,32

Mean H	Mean P	Gap
4,2	3,53	-0,67
4,31	4,06	-0,25
4,27	4	-0,27
4,37	4,05	-0,32
4,27	3,8	-0,47

Table 7. Gap Calculation Results

Dimension	Hope	Perception	weightless	Weight	With weight
Tangible	4,25	3,69	-0,56	0,26	-0,68
Reliability	4,15	3,55	-0,60	0,18	-0,53
Responsiveness	4,33	4,00	-0,33	0,21	-0,34
Assurance	4,26	3,86	-0,40	0,18	-0,36
Empathy	4,32	3,93	-0,39	0,18	-0,36

Table 2 and Table 3 show that all variables have negative gap values. This means that the service at the Trans Jogja bus stop has not been able to meet user expectations.

Analysis of SERVQUAL Method Results

From the results of data processing, it was obtained that there was a gap in all service dimensions at the Trans Jogja bus stop. The dimension with the largest gap occurred in the tangible dimension followed by the reliability, empathy, assurance dimensions, and the one with the smallest gap was responsiveness. The results of this analysis will be used to determine the Technical Requirement for the House of Quality (HOQ) method.

Determination of Voice of Customer House of Quality (HOQ)

Method Voice of Customer is the needs and desires of users regarding the services provided by the Trans Jogja bus stop. It is made based on statements in the questionnaire that have a gap score. Voice of Customer can be seen in Table 4, as follows:

Table 8. Voice of Customer

Variable	Gap Score
Strategic shape and location of Trans Jogja bus stops	-0,97
Trans Jogja bus stops always provide services at the promised time	-0,93
The treatment of bus stop staff provided is consistent towards prospective passengers at Trans Jogja bus stops	-0,90
Trans Jogja bus stops provide a sense of security to their users (CCTV)	-0,69
Adequate internet facilities (hotspot)	-0,68
Trans Jogja bus stops provide a forum for criticism and complaints submitted by visitors	-0,67
Complete supporting service facilities (waiting room and toilet)	-0,62
Complete equipment/instructions for users with disabilities	-0,57
How Trans Jogja bus stop staff greet visitors and patients politely and friendly	-0,47
Availability of drinking water at each bus stop	-0,44
Speed in providing services	-0,40

Variable Grouping After obtaining the Voice of Customer, the next step is to group the variables based on the level of effort. The grouping of service variables at the Trans Jogja bus stop can be seen in Table 5, as follows:

Table 9. Grouping of Variables Based on the Level of Effort

Variable	Ability Level
The treatment of the bus stop staff provided is consistent towards prospective passengers at the Trans Jogja bus stop	Can Be Attempted
The Trans Jogja bus stop provides a forum for criticism and complaints submitted by visitors	
The Trans Jogja bus stop always provides services at the promised time	
Complete equipment/instructions for disabled users	
Availability of drinking water at each bus stop	
Kecepatan dalam memberikan pelayanan	Depends on Other Parties
Speed in providing services	
The Trans Jogja bus stop provides a sense of security to its users (CCTV)	
Fasilitas internet yang memadai (hotspot)	
Adequate internet facilities (hotspot)	
Complete equipment/instructions for disabled users	Hard to Attempted
Complete supporting service facilities (waiting room and toilet)	
<u>Strategic shape and location of the Trans Jogja bus stop</u>	



: Strong Relationship (9)

: Middle Relationship (3)

: Weak Relationship (1)

The relationship between Voice of Customer and Technical Requirements can be seen in Table 6, as follows:

Table 10. Relationship between Voice of Customer and Technical Requirements

Technical Requirement	Symbols	Voice of Customer
Conduct training to improve performance	○	The treatment of the bus stop staff provided is consistent towards prospective passengers at the Trans Jogja bus stop
	●	Speed in providing services
	○	The way the Trans Jogja bus stop staff greet visitors and patients politely and friendly
Conduct staff performance evaluation	○	Trans Jogja bus stops provide a forum for criticism and complaints submitted by visitors
	●	Speed in providing services
Update departure schedules route and routes per day clearly and in detail	●	Trans Jogja bus stops always provide services at the promised time

<i>Technical Requirement</i>	<i>Symbols</i>	<i>Voice of Customer</i>
	△	Speed in providing services
Controlling the availability of service facilities	●	Complete equipment/instructions for disabled users
	○	Adequate internet facilities (hotspots)
Controlling the cleanliness and comfort of bus stops	○	Availability of drinking water at each bus stop Complete equipment/instructions for disabled users
Provide a suggestion and criticism box	●	Trans Jogja bus stops provide a forum for criticism and complaints submitted by visitors
	●	Speed in providing services
	△	The strategic shape and location of the Trans Jogja bus stop
Providing supporting facilities for security and smooth running	△	The Trans Jogja bus stop provides a sense of security to its users (CCTV)

RESULTS AND DISCUSSION

a. Determination of Relationship of Technical Requirement (Correlation Matrix)

Technical Requirements that have a positive relationship are:

1. Conducting training to improve performance by conducting performance evaluations and implementing SOPs
2. Providing a suggestion and criticism box by providing a response board
3. Controlling the availability of service facilities by completing the required facilities.

b. Preparation of Operating Goal/Target Components

This data is obtained from considerations regarding things that have been done so far to meet the needs and desires of users. This data is placed at the bottom of the House of Quality.

Table 11. Operation Goal of Trans Jogja Bus Stop Services

<i>Technical Requirement</i>	<i>Operating Goal</i>
Conduct training to improve performance	Employee KPI 90%
Conduct staff performance evaluations	KPI increase 30% every month
Update departure schedules and routes per day clearly and in detail	Service time complaints decreased by 20%
Control the availability of service facilities	Customer satisfaction with facilities 80%
Control the cleanliness and comfort of bus stops	Number of customers increased by 50%
Implement SOPs for staff	Service certainty complaints decreased by 20%

<i>Technical Requirement</i>	<i>Operating Goal</i>
Provide suggestion and criticism boxes	Customer feedback 80%
Provide supporting facilities for security and smoothness	Consumer satisfaction 80%

c. Arrangement of Improvement Priorities to Increase Consumer Satisfaction

Improvement priorities are arranged based on the Rank of Column Weight in the House of Quality Matrix, as follows:

Table 12. List of Improvement Priorities

Rank	Technical Requirement	Coloum Weight
1	Conduct training to improve performance	-10,32
2	Conduct staff performance evaluations	-9
3	Update departure schedules and routes per day clearly and in detail	-8,77
4	Control the availability of service facilities	-8,77
5	Control the cleanliness and comfort of bus stops	-6,45
6	Implement SOPs for staff	-6,03
7	Provide suggestion and criticism boxes	-5,67
8	Provide supporting facilities for security and smoothness	-2,32

d. House of Quality

From the calculations and analysis above, the following is a House of Quality service at the Trans Jogja bus stop.

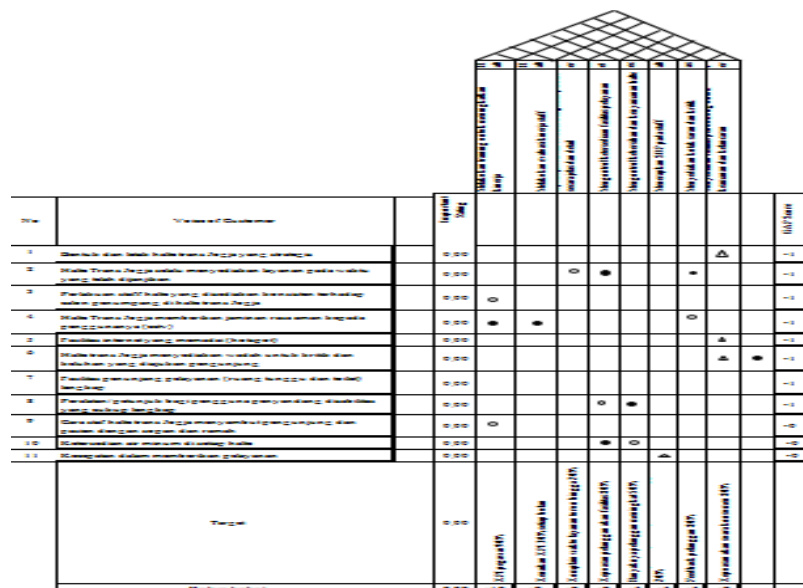


Fig. 1. House of Quality

CONCLUSION

1. The cause of customer dissatisfaction in the Servqual analysis is from the results of data processing obtained that there is a gap in all service dimensions at the Trans Jogja bus stop. The dimension with the largest gap occurs in the tangible dimension followed by the dimensions of reliability, empathy, assurance, and the one with the smallest gap is responsiveness.
2. Determining the highest to smallest improvement priorities to increase customer satisfaction in the

House of Quality analysis is to conduct training to improve performance, conduct staff performance evaluations, update daily departure schedules and routes clearly and in detail, control the availability of service facilities, implement SOPs for staff, provide suggestion and criticism boxes, and provide supporting facilities for the safety and smoothness of Trans Jogja bus stop users.

ACKNOWLEDGMENT

Praise the authors pray to the presence of Allah SWT, for His blessings and mercy. So that the writer can complete this research smoothly. The author also thanks TRANS JOGJA Bus Stop for being the case study material in this research. The authors also thank the Industrial Engineering Study Program, Faculty of Engineering, Tanjungpura University, which has supported this research.

REFERENCES

- [1] Luluk Nafilatur Rizqi, Rachmawati Novaria, and Indah Murti, "Kualitas Pelayanan Bus Trans Jatim Terhadap Kepuasan Masyarakat," *Eksekusi : Jurnal Ilmu Hukum dan Administrasi Negara*, vol. 2, no. 1, pp. 286–302, Dec. 2023, doi: 10.55606/eksekusi.v2i1.887.
- [2] F. M. Rizaldi, G. G. Wirakanda, and D. Pringgabayu, "Analisis Kepuasan Pelanggan Terhadap Pelayanan Jasa Kereta Api Priority (Jakarta – Surabaya) Menggunakan Metode Importance Performance Analysis," *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, vol. 8, no. 2, pp. 1716–1723, Jul. 2024, doi: 10.31955/mea.v8i2.4225.
- [3] N. A. Natalia Fransisca and Y. Yenita, "Analisis Dampak Service Quality terhadap Customer Trust, Customer Satisfaction dan Customer Loyalty Bus Transjakarta," *Jurnal Ecodemica : Jurnal Ekonomi Manajemen dan Bisnis*, vol. 7, no. 1, pp. 111–122, May 2023, doi: 10.31294/eco.v7i1.15173.
- [4] M. W. Nugroho and S. Susilowati, "Pendekatan House Of Quality (HOQ) Terhadap Kinerja Jalan dengan Metode Quality Function Deployment (QFD)," *Briliant: Jurnal Riset dan Konseptual*, vol. 7, no. 3, p. 785, Aug. 2022, doi: 10.28926/briliant.v7i3.998.
- [5] N. S. Pangaribuan and Yenita, "Kualitas Pelayanan Terhadap Kepuasan Pelanggan Dan Dampaknya Pada Loyalitas Pelanggan Perusahaan Transportasi Umum," *PAPATUNG: Jurnal Ilmu Administrasi Publik, Pemerintahan dan Politik*, vol. 6, no. 1, pp. 1–15, Jan. 2023, doi: 10.54783/japp.v6i1.652.
- [6] A. Saleh, Y. Herdianzah, A. Pawennari, and A. Ahmad, "Planning to improve the quality of public services using servqual and Quality Function Deployment integration," *Operations Excellence: Journal of Applied Industrial Engineering*, vol. 15, no. 1, p. 12, Aug. 2023, doi: 10.22441/oe.2023.v15.i1.068.
- [7] A. Fole, Y. Herdianzah, H. Haswika, W. Astutik, M. Mujaddid, and J. Kulsaputro, "The Effect of Marketing Digitalization on the Performance and Sustainability of Culinary MSMEs in the New Normal Era," *Proceeding of Research and Civil Society Desemination*, vol. 2, no. 1, pp. 375–386, Sep. 2024, doi: 10.37476/presed.v2i1.81.
- [8] C. Tamara Putri and K. Umam, "Pengaruh Kualitas Pelayanan Terhadap Kepuasan Penumpang Bus Transjakarta Di Halte Busway Pgc 2 Koridor X (PGC 2-TANJUNG PRIOK)," *Economics Learning Experience & Social Thinking Education Journal*, vol. 4, no. 1, pp. 56–65, Jun. 2024, doi: 10.58890/eleste.v4i1.218.
- [9] S. Ridwan, M. J. Ermansyah, and N. Apriyana, "Pengaruh Kualitas Layanan Terhadap Kepuasan Dan Loyalitas Pelanggan Pada Orange Supermarket Di Merauke Town Square," *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, vol. 8, no. 2, pp. 1048–1070, Jun. 2024, doi: 10.31955/mea.v8i2.4116.
- [10] Y. Prananda, D. R. Lucitasari, and M. S. Abdul Khannan, "Penerapan Metode Service Quality (Servqual) Untuk Peningkatan Kualitas Pelayanan Pelanggan," *OPSI*, vol. 12, no. 1, p. 1, Jun. 2019, doi: 10.31315/opsi.v12i1.2827.
- [11] M. A. S. Nugroho, S. Riauunto, and R. Yuniawan, "Pengaruh E-Service Quality, Persepsi Harga, Dan Brand Image Terhadap Loyalitas Konsumen Dalam E-Commerce Shopee Di Masa

- Pandemi,” *Jurnal Riset Akuntansi dan Bisnis Indonesia*, vol. 3, no. 1, Mar. 2023, doi: 10.32477/jrabi.v3i1.687.
- [12] N. Djunaedi and Muh. Akil Rahman, “Pengaruh Service Quality terhadap Customer Satisfaction pada Layanan Jasa Go-Jek di Kota Palopo,” *Jurnal Manajemen Perbankan Keuangan Nitro*, vol. 6, no. 1, pp. 26–38, Jan. 2023, doi: 10.56858/jmpkn.v6i1.89.
- [13] Y. Palinggi, S. Sabran, and H. Hamji, “Analisis Kepuasan Pelanggan Dengan Importance Performance Analysis (IPA),” *Jurnal Ekonomi & Manajemen Indonesia*, vol. 23, no. 1, pp. 67–77, Jun. 2023, doi: 10.53640/jemi.v23i1.1342.
- [14] R. Kusumadewi and B. Rusdian, “Implementasi Matriks House-of-Quality Dalam Rangka Mengkreasi Nilai Konsumen,” *Entrepreneur: Jurnal Bisnis Manajemen dan Kewirausahaan*, vol. 3, no. 2, pp. 551–564, Jul. 2022, doi: 10.31949/entrepreneur.v3i2.2238.
- [15] Z. Zulkarnain, Y. Apriyanti, A. D. Aulia, W. Pratiwi, and S. Imam, “House of Quality sebagai Pengendalian Kualitas Produk pada Kemasan Karton Lipat,” *Jurnal PASTI (Penelitian dan Aplikasi Sistem dan Teknik Industri)*, vol. 17, no. 1, p. 115, Aug. 2023, doi: 10.22441/pasti.2023.v17i1.011.