

Analysis of Passenger Satisfaction with LRT Jakarta Services Route Velodrome - Boulevard Utara

Muhammad Isradi, Muhammad Naufal Farhan, Andri Irfan Rifai, Amar Mufhidin

Faculty of Engineering, Mercu Buana University Jakarta, Indonesia

isradi@mercubuana.ac.id fnaufal629@gmail.com andrifan@yahoo.com

amarmufhidin@gmail.com

Joewono Prasetijo

Faculty of Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia

joewono@uthm.edu.my

Abstract

One of the problems in the city of Jakarta is traffic jams which cause losses of up to 36 trillion rupiah per year. The efforts of the local government to unravel vehicle congestion are the construction of rail-based public transportation such as KRL, MRT and LRT which is integrated with public transportation in other cities. One of them is the new public transportation operating, namely the LRT (*Light Rail Transit*). In realizing the public transportation system in the city of Jakarta, it is hoped that the community will switch from private vehicles to integrated public transportation so that the Jakarta LRT manager must provide the best service in the operation of the Jakarta LRT. The objective of this research is to find out the level of service quality provided to consumers, it is necessary to analyze the quality of service so that people want to switch to using public transportation from private vehicles so as to reduce the number of vehicles on Jakarta city roads.

In this analysis, it discusses the satisfaction of LRT passengers in Jakarta Velodrome Route - North Boulevard by comparing service performance and service satisfaction then processing it using the "*Importance Performance Analysis*" method so that we can find out the position of service factors according to priority levels based on the quadrants in the Cartesian diagram, then analyze it with the Validity Test, Reliability Test and Normality Test with a sample size of 100 respondents using the SPSS program.

The results of the analysis show that service performance and passenger service satisfaction get an average rating achievement, for service performance of 4.08 out of 5.00 (very good) and service satisfaction of 4.13 out of 5.00 (very satisfied). The results of the validity test obtained more than 0.165 (valid data), the results of the Reliability test obtained Cronbach's Alpha results of more than 0.6 (reliable data) and the results of the normality test were more than 0.5 (data normally distributed).

Keywords :

Importance Performance Analysis, Light Rail Transit, Passenger Satisfaction, Velodrome - Boulevard Utara.

1. Introduction

DKI Jakarta is one of the most densely populated cities in Indonesia, reaching 15,900 people / km². Besides that, Jakarta is also the capital city of the country and also a business center, with a population of 10,557,810 people (BPS, 2018).

One of the problems in the city of Jakarta is traffic jams where the losses reach 36 trillion per year (Katadata, 2019). The efforts of the local government to unravel vehicle congestion are the construction of rail-based public transportation such as KRL, MRT and LRT which is integrated with public transportation in other cities. One of the new public transportation operations is the LRT (*Light Rail Transit*). LRT (*Light Rail Transit*) or light train is one of the rail-based public transportation owned by Jakarta to develop a modern and integrated public transportation network.

The transportation system can be interpreted as a component that supports and cooperates in the provision of transportation services that serve areas ranging from local (rural and urban) to national and international levels. (Miro, 2012)



Figure 1. Light Rail Transit

LRT (Light Rail Transit) is a metropolitan transportation system for electric rail-based passenger trains (light trains) which is characterized by the ability to operate short trains along exclusive lines, which usually operate in urban areas that have light construction and can travel with traffic. other or in a special track (Shofian Edy Harianto et al., 2019).

In realizing the public transportation system in DKI Jakarta, it is hoped that the public will switch from private transportation to integrated public transportation so that the Jakarta LRT manager must provide the best service in the operation of the Jakarta LRT.

To find out what the quality of service provided to passengers is needed, it is necessary to analyze the quality of service for Jakarta LRT services based on 5 dimensions of service quality.

Service quality is the overall characteristics and characteristics of a product or service that affect its ability to satisfy stated or implied needs (Kotler, 2008) in (Wulandari, 2016), 5 dimensions of service quality according to Parasuraman, cited by (Fandy, 2011) :

1. Tangible
2. Reliability
3. Responsiveness
4. Assurance
5. Empathy

Satisfaction is the feeling of pleasure or disappointment from customers who are obtained from comparing a product or service against expectations (Philip & Keller, 2016).

The objective of this research was :

1. Knowing the average number of passengers on the Jakarta LRT per day
2. Knowing the level of customer satisfaction with the Jakarta LRT service from the Velodrome Station (Rawamangun) - North Boulevard Station (Kelapa Gading)
3. Know what needs to be improved to improve services on the LRT Jakarta.

2. Methodology

This research requires several stages in the process, such as processing a questionnaire based on 5 dimensions of service quality which will be distributed to 100 respondents directly and online, respondents will provide a Likert scale assessment of service performance quality with service satisfaction LRT Jakarta following 21 statements In the questionnaire that the researcher gave, then primary and secondary data collection, primary data was obtained from questionnaire answers from respondents while secondary data was obtained from related agencies, then processed the data using the Importance Performance Analysis method and analyzed it with several data tests, namely validity test, reliability test, and normality test.

2.1. Questionnaire Data Processing

data that has been collected is then processed using the Important Performance Analysis method by comparing the quality of service performance with the satisfaction with the service obtained by using the LRT Jakarta services, the results are the priority level of the statement attributes in the questionnaire presented in a Cartesian diagram.

2.2. Data Analysis

To find out which instrument is really good at measuring service levels and producing valid data, several tests are carried out as follows:

2.2.1. Validity Test

Validity Test in research is carried out with the aim of knowing the extent to which measuring instruments are used in what you want to measure. The question items in the questionnaire are declared valid if the $r_{\text{Calculate}} > r_{\text{Table}}$ (Sunnyoto, 2009) in (Muhammad et al., 2020). Testing with the following test criteria:

- a) If $r_{\text{Calculate}} > r_{\text{Table}}$, then the data is valid.
- b) If $r_{\text{Calculate}} < r_{\text{Table}}$, then the data is Invalid.

2.2.2. Reliability Test

Reliability test is carried out to assess the consistency of the instrument to be answered by the respondent, whether the instrument used several times can measure the same object, will produce the same data. reliability is one of the main characteristics or characteristics of a good measurement instrument (Azwar, 2003). All statements of instrument measurement are declared valid if the variable value is above 0.6 (Sugiyono, 2011) in (Nabila, 2019). Testing with the following test criteria:

- a) If Cronbach's Alpha > 0.6 , then the data is reliable.
- b) If Cronbach's Alpha < 0.6 , then the data is not reliable.

2.2.3. Normality Test

Normality test is a procedure used to determine whether the data comes from a normally distributed population or is in a normal distribution. The normal distribution is a symmetrical distribution with the mode, mean and median being centered (Nuryadi et al., 2017). The normality test was carried out using the Kolmogorov-Smirnov test with the following test criteria:

- a) If Significance > 0.05 , then the data is normally distributed.
- b) If Significance < 0.05 , then the data is not normally distributed

3. Result and Analysis

3.1. Number of LRT Jakarta Passengers

Following is the number of Jakarta LRT Passengers from December 2019 - October 2020, can be seen in Figure 2:



Figure 2. Graph of the Total Number of LRT Jakarta Passengers

Following is the average number of Jakarta LRT passengers from December 2019 - October 2020, can be seen in Figure 3:

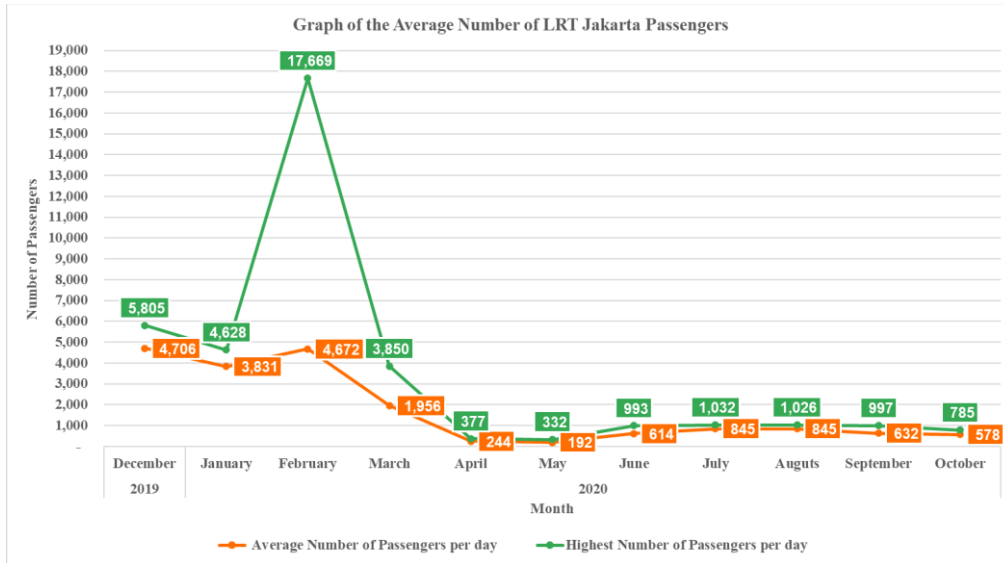


Figure 3. Graph of the Average Number of LRT Jakarta Passengers

Can be seen that the highest number of Jakarta LRT passengers was in December 2019 amounting to 145,897 passengers, the highest average number of passengers per day was in the month December 2019 with 4,706 passengers, the highest number of passengers per day was in February 2020 with 17,669 passengers.

3.2. Characteristics of Respondents from LRT Passenger Jakarta

Here are the characteristics of the service user respondents LRT route Velodrome Jakarta - North Boulevard that consists of 100 respondents, can be seen in Table 1 and Table 2:

Table 1. The Number of Respondent by Gender

Gender	Total	Percentage
Male	57	57%
Female	43	43%
Total	100	100%

Table 2. The Number or Respondent by Age

Age	Total	Percentage
16 – 25 Years	70	70%
26 – 35 Years	22	22%
36 – 45 Years	4	4%
46 – 55 Years	2	2%
>55 Years	2	2%
Total	100	100%

3.3. Assessment of Service Performance Levels and Service Satisfaction

following is an assessment of service performance levels and passenger service satisfaction, can be seen in Figure 4 :

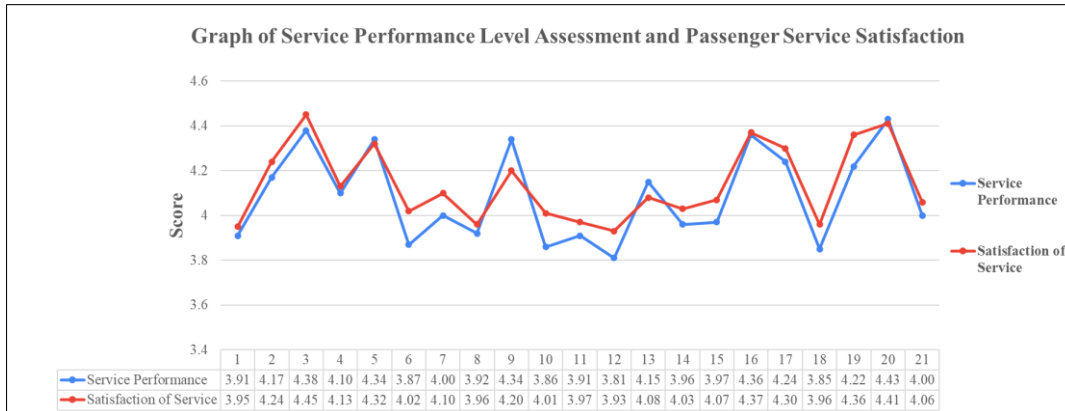


Figure 4. Graph of Service Performance Level Assessment and Passenger Service Satisfaction

From the table above it can be seen the total average of each service dimension as the following:

1. The performance of the Jakarta LRT service for the Velodrome - North Boulevard route obtained an average score of **4.08 out of 5.00**, meaning it can be concluded that the quality as the performance of the services provided to passengers is **very good**.
2. The satisfaction of the Jakarta LRT service for the Velodrome - North Boulevard route obtained an average score of **4.13 out of 5.00**, it means that it can be concluded that satisfaction with the service performance provided to passengers is **very satisfied**.

3.4. Calculation of Priority Level

Following is a Cartesian diagram that has been processed using the SPSS program, it can be seen in Figure 5:

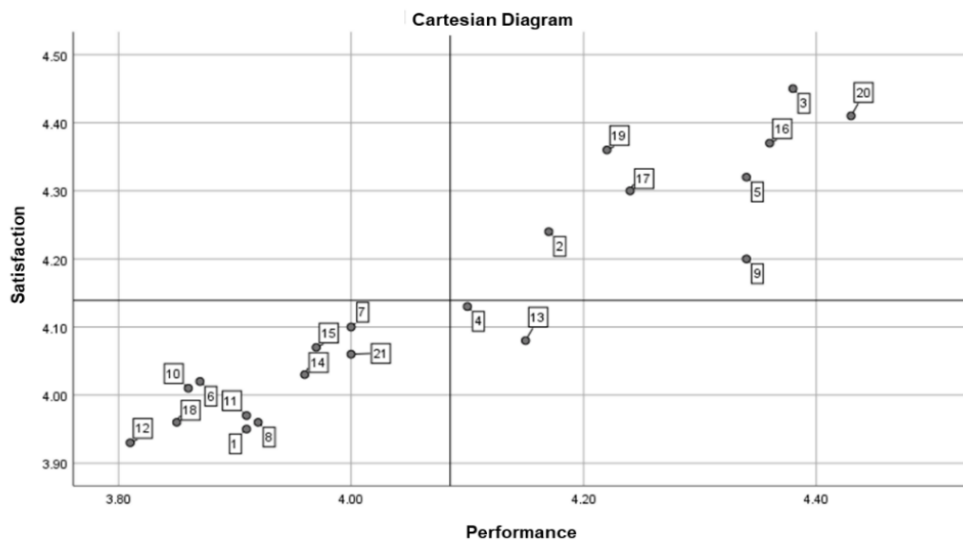


Figure 5. Cartesian Diagram

Based on the results of the data processing above, the statement items described by the Cartesian diagram can be described as follows:

- A. **Quadrant A** states that the items are top priority, items in this quadrant indicate service performance appraisals. below average but the value of passenger satisfaction is above average. This quadrant must be a top priority, service performance needs to be improved in order to create better services.
- B. **Quadrant B** states that the item is maintaining performance, items in this quadrant indicate service performance and satisfaction ratings are above average so that items in In this knowledge, the achievement must be maintained, because the performance and service satisfaction are in line with expectations
 - 1) 2nd statement, Station facilities (seats, toilets, prayer rooms, clear information boards etc.)
 - 2) 3rd statement, Condition and completeness of facilities at the station and on the train (seats, air conditioning, fire extinguishers, etc.)

- 3) 5th statement, Tidiness and cleanliness of officers
 - 4) 9th statement, Availability of information boards about station names, the direction of the train and train destinations and time information (arrival and departure)
 - 5) 16th statement, Security guarantees at the station and on the train (CCTV, Uniformed Officers, etc.)
 - 6) 17th statement, Courtesy of officers or staff in serving customers
 - 7) 19th statement, Hospitality of officers and staff in serving passengers
 - 8) 20th statement, Convenience and cleanliness of facilities at the station and on the train
- C. **Quadrant C** states that the item is a low priority, the item in this quadrant shows the service performance assessment and satisfaction assessment at the same low level, but the implementation still needs to be improved. r passenger expectations are met.
- 1) 1st statement, Access to station location (integrated with transportation modes and easy to reach)
 - 2) 6th statement, Accuracy of train arrival and departure times
 - 3) 7th statement, Accuracy of train travel time
 - 4) 8th statement, Officers who are ready to help passengers
 - 5) 10th statement, Ease and speed of ticket purchasing service
 - 6) 11th statement, Officer response in resolving consumer complaints
 - 7) 12th statement, Officer response in handling emergencies
 - 8) 14th Statement, The ability of officers to master knowledge about train and travel information
 - 9) 15th statement, Officer skills in handling every consumer question or problem
 - 10) 18th statement, Honesty of officers and staff to passengers
 - 11) 21st statement, Attention officers and staff to passengers
- D. **Quadrant D** states that items that are in this quadrant show the results of service performance above average but satisfaction is below average so that items that update passenger satisfaction are excessive in their implementation by passengers because passengers think they don't expect these items, but the implementation is done very well.
- 1) 4th statement, The presence of officers on the platform and on the train
 - 2) 13th statement, The ability of officers to convey information

3.5. Validity Test

In conducting the validity test the researcher uses the SPSS program by entering service performance values and service satisfaction, statement items are stated valid if $r_{Calculate} > r_{Table}$.

To determine the r table, it can be seen in the distribution table of the R significance value of 5% and 1%, the method is based on the number of respondents, which is 100 so that it can be seen that the value of the r table to be used is 0.195.

following are the results of validity tests on service performance and satisfaction, can be seen in Table 3 and Table 4:

Table 3. Validity Test Results of Service Performance
Service Performance

Statement	r Calculate	r Table	Description
1	0.488	0.195	Valid
2	0.662	0.195	Valid
3	0.631	0.195	Valid
4	0.661	0.195	Valid
5	0.554	0.195	Valid
6	0.633	0.195	Valid
7	0.648	0.195	Valid
8	0.579	0.195	Valid
9	0.522	0.195	Valid
10	0.416	0.195	Valid
11	0.523	0.195	Valid
12	0.596	0.195	Valid
13	0.569	0.195	Valid
14	0.453	0.195	Valid
15	0.710	0.195	Valid
16	0.616	0.195	Valid
17	0.758	0.195	Valid
18	0.690	0.195	Valid
19	0.653	0.195	Valid
20	0.633	0.195	Valid
21	0.666	0.195	Valid

Table 4. Validity Test Results of Satisfaction of Performance
Satisfaction of Performance

Statement	r Calculate	rTable	Description
1	0.673	0.195	Valid
2	0.755	0.195	Valid
3	0.668	0.195	Valid
4	0.743	0.195	Valid
5	0.746	0.195	Valid
6	0.739	0.195	Valid
7	0.842	0.195	Valid
8	0.768	0.195	Valid
9	0.803	0.195	Valid
10	0.644	0.195	Valid
11	0.765	0.195	Valid
12	0.712	0.195	Valid
13	0.817	0.195	Valid
14	0.648	0.195	Valid
15	0.736	0.195	Valid
16	0.679	0.195	Valid
17	0.784	0.195	Valid
18	0.704	0.195	Valid
19	0.747	0.195	Valid
20	0.766	0.195	Valid
21	0.685	0.195	Valid

From the validity test can be seen that all $r_{Calculate} > r_{Table}$ so that it can be concluded that all data are declared valid.

3.6. Reliability Test

In conducting the reliability test the researchers used the SPSS program by entering the value of service performance and service satisfaction, the questionnaire was declared reliable if Cronbach's Alpha > 0.6 , whereas if Cronbach's Alpha < 0.6 , then it is not reliable.

following are the results of the test on performance and service satisfaction, can be seen in Table 5 and Table 6 :

Table 5. Reliability Test Results of Service Performance

Reliability Statistics	
Cronbach's	
Alpha	N of Items
.911	21

Table 6. Reliability Test Results of Satisfaction of Performance

Reliability Statistics	
Cronbach's	
Alpha	N of Items
.956	21

From the reliability test, it can be seen that all Cronbach's Alpha values are > 0.6, so it can be concluded that all data are declared reliable.

3.7. Normality Test

In conducting the normality test on the value of service performance and service satisfaction the researcher uses the SPSS program by performing the normality test Kolmogorov-Smirnov on the value unstandardized residual (Res_1). The questionnaire is declared normally distributed if the significance value is > 0.05, while if the significance value is < 0.05 then the questionnaire is not normally distributed, the normality test results can be seen in Table 6 :

Tabel 6. Normality Test Result
 One- Sample Kolmogorov – Smirnov Test

		Unstandardiz ed Residual
N		100
Normal Parametersa	Mean	,0000000
	Std. Deviation	6,20176373
Most Extreme Differences	Absolute	,096
	Positive	,096
	Negative	-,95
Kolmogorov-Smimov Z		,960
Asymp. Sig. (2-tailed)		,315

a. Test distribution is Normal.

From the normality test it can be seen that the significance value obtained is 0.315 > 0.05, so it can be concluded that all data is distributed normal

4. Conclusion

From the research that has been conducted on the quality of performance and passenger satisfaction with Jakarta LRT services on the Velodrome - Boulevard Utara route, some conclusions can be drawn as follows:

1. It can be seen that the highest number of Jakarta LRT passengers per day reached 17,669 people in February 2020, with the highest average passenger per day of 4,706 people in December 2019, and the highest total number of passengers reaching 145,897 people, namely in December 2019. It
2. can be stated that satisfaction of the service quality of the Jakarta LRT route Velodrome - North Boulevard is very good.
 - a. With an average rating for service performance of 4.08 out of 5.00, it means that it can be concluded that the quality of service performance provided to passengers is **very good**.
 - b. As for the average rating for service satisfaction of 4.13 out of 5.00, it means that it can be concluded that satisfaction with the performance of the services provided to passengers is **very satisfied**.
3. After performing data processing then made Cartesian diagram (Important Performance Analysis) based on the calculation table the average - average then point the item will be in the group right up into 4 quadrants priority so that it can be concluded about the services that need to be improved so that the service obtained passengers in accordance with customer expectations,

Following These services that need to be improved are in quadrant C, namely:

1. 1st statement, Access to station location (integrated with transportation modes and easy to reach)

2. 6th statement, Accuracy of train arrival and departure times
3. 7th statement, Accuracy of train travel time
4. 8th statement, Officers who are ready to help passengers
5. 10th statement, Ease and speed of ticket purchasing service
6. 11th statement, Officer response in resolving consumer complaints
7. 12th statement, Officer response in handling emergencies
8. 14th Statement, The ability of officers to master knowledge about train and travel information
9. 15th statement, Officer skills in handling every consumer question or problem
10. 18th statement, Honesty of officers and staff to passengers
11. 21st statement, Attention officers and staff to passengers

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Biographies

Muhammad Isradi. Born in Kediri 15 September 1989. She is the Secretary of the Civil Engineering Study Program at Mercu Buana Meruya University. Obtained a Bachelor of Civil Engineering degree from the State University of Malang in 2013 with the title of his thesis, Evaluation of Laboratory Facilities and Infrastructure for Private Building in Vocational Schools in Malang. Then obtained a Masters in Civil Engineering Concentration of Transportation from the Bandung Institute of Technology in 2017 with a thesis title, The Effect of Transportation Technology Applications on the Probability of Online Taxi Users. He also teaches several subjects such as Pavement Planning, Road Geometric Planning, Transportation Engineering, Rail Road Design.

Muhammad Naufal Farhan. Born in Jakarta on February 6, 1999. He is pursuing a Bachelor's Degree in Civil Engineering Study Program at Mercu Buana University and will graduate in 2021. Graduated from Vocational High School Panglima Besar Soedirman 1 Cijantung East Jakarta in 2017. He was an apprentice student at Cibitung - Cilincing toll road construction project section 4 in North Jakarta as a field assistant, he is also involved in several civil engineering seminars as a committee, National Seminar: "Transport Infrastructure Development Model" in 2018, "Modern Transit-Oriented Development Management" in 2019, International Seminar and Workshop: "Sustainability on Industry and community: impact of research and publication" in 2019.

Andri Irfan Rifai, Is a Senior Lecturer of Civil Engineering and Planning. He completed the PhD at the Universitas Indonesia & Universidade do Minho with Sandwich Program Scholarship from the Directorate General of Higher Education and LPDP scholarship. He has been teaching for more than 19 years and much active to applied his knowledge in the project construction in Indonesia. His research interest ranges from pavement management system to advanced data mining techniques for transportation engineering. He has published more than 50 papers in journals and 2 books.

Amar Mufhidin. Born in Majalengka on June 16, 1991. Lecturer in several study programs: pavement planning, road geometric planning, and transportation planning. Obtained a degree in Civil Engineering from the University of Education of Indonesia, and a Masters in Civil Engineering with a concentration in transportation



from the Bandung Institute of Technology. He has a pavement expertise certificate from the Construction Services Regulatory Agency. And he is still active in road planning projects in Indonesia.

Dr.-Ing. Joewono Prasetijo, born in Pontianak on 18 October 1969. He earned his Engineer title in Civil Engineering in Tanjungpura University, Pontianak, Indonesia in 1993. He earned his Master of Science in Road and Transportation Engineering from Delft University of Technology, The Netherlands in 1996. He earned his Doctor Ingenieur from Ruhr-Universität Bochum, Germany in 1996. Now he is a Head Of Department of Rail Transportation Engineering Technology, Faculty of Engineering Technology, Univerisity Tun Hussein Onn Malaysia.