

# Service Quality Towards Community Satisfaction in the KRL Access Application (Case Study of Jakarta-Bogor Travel Route Users)

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## ABSTRACT

The development of technology and information in the digital era has changed the lifestyle of people in various sectors, including in transportation service, which is a significant and strategic means of improving the economy. Along with the increasing need for public transportation by urban communities, trains are becoming a highly demanded alternative by the public with many advantages such as low pollution, absence of traffic jams, mass carriage nature, cheaper costs, and a relatively faster time. Therefore, this study aims to determine the level of community satisfaction through information services on Electric Rel Trains (KRL) Access applications for users of the Jakarta-Bogor Travel Route. A total of 100 respondents were examined using the convenience sampling method, and the research used a descriptive and quantitative approach. The data were processed using multiple linear regression analysis, and the results showed the levels of the KRL Access application satisfaction to the travel route users. This was performed by employing partial and simultaneous variables of reliability, responsiveness, assurance, empathy, and tangibility, all of which obtained positive and significant outcomes. Therefore, the provision of good services was shown to be fundamental to organizational success as it directly impacts the company's reputation.

**Keywords:** *Service Quality, Satisfaction, KRL Access.*

## 1. INTRODUCTION

The transportation sector has broad links to the economy and plays a vital role in supporting various daily activities. Transportation is an important tool and a strategic factor in expediting economic development, strengthening unity and integrity, as well as affecting all aspects of life. The significance is reflected in the rising need for the mobility of people and goods due to an increasing population and widespread settlement development, particularly in big cities [1].

Subsequently, the use of electric train services popularly called KRL can be a choice in transportation services, and these trains must be able to provide maximum satisfaction to users, especially in terms of customer service and comfort [2].

Based on data from PT KAI Commuter Jabodetabek, train users that traveled through this electric circuit unit in 2016 increased by 8.95% from 257.53 million to

280.59 million passengers. From this number, the Bogor route users were 190.83 million, which accounted for 68% of the total value of commuters on the Train the previous year. This was followed by 37.85 million Bekasi Line users, 35.13 million Serpong Route passengers, and 16.77 million Tangerang Line commuters, which constituted 13.49%, 12.5%, and 5.9%, respectively [3].

Public discomfort over erratic KRL schedules necessitates the availability of information on the train arrival and departure by the users in real-time. This is expected to enable the passengers to estimate the trip from their location to the departure station to avoid long waits. Therefore, the Jobodetabek Commuter Train known as PT KCJ provided a solution by developing an innovative application called KRL Access. This mobile application aims to facilitate Jabodetabek KRL users to discover the train's position with ease and also obtain the latest news from PT KCJ's social media [4]

Subsequently, the application users encountered several problems during operation that caused them to give negative reviews. These evaluations are visible from Google Play Store where with a total of 1 million downloads since the release of February 3, 2014, an average rating of 3.8 out of 5 stars has been garnered. Based on the reviews obtained from the Store, several complaints were made concerning the inability to choose the desired station and the occurrence of errors, which provide a feeling of discomfort and prevent the use of some functions [5].

In principle, this research aims to test the level of customer satisfaction through information services on the Electric Rail Train (KRL) Access application by using the SERVQUAL method. This was implemented particularly on the Jakarta-Bogor route and was also performed to discover what service factors on the KRL Access required prioritization to meet community expectations.

**2. LITERATURE REVIEW**

***Electric Rail Trains (KRL)***

Electric Rail Trains, abbreviated as KRL, are rail trains that move with electric motor propulsion system. In Indonesia, electric rail trains are mainly found at Jabotabek area, and is a train that serves commuters [4].

***KRL Access Application***

As a commuter line user, the train schedules are important for estimating the delay duration and also the route to be followed during the trip. Therefore, PT KCI innovated by issuing the KRL Access application, which is a refinement of the KRL info application. The new features offered make it easier for the rail service users to discover the position of the train and the departure schedule. This application also combines all access to KCI social media information into one platform. Therefore, users can register to get notifications directly to their cellphones when new information about KRL traffic conditions is acquired [4].

***Service Quality***

Service quality is interpreted as an effort to fulfill the needs and desires of consumers and the delivery accuracy in balancing customer expectations. It is determined by comparing their perceptions of the received or derived service with the expectations or wants from the company attributes [6].

Furthermore, service quality refers to the degree of difference between reality and customer expectations for the service they receive [7]. It starts with customer needs, ends with their satisfaction, and can affect their loyalty. This emotional bonding allows the company to carefully understand the expectations and specific needs of the customer. Consequently, user satisfaction can be

increased by maximizing pleasant experiences and minimizing or eliminating distasteful ones [8].

Service quality is considered as good when the expected perception and the user’s realities are the same or vice versa. It entails five dimensions which are Reliability, Responsiveness, Assurance, Empathy, and Tangibility [9].

Reliability, Responsiveness, Assurance, Tangibility and Empathy have a significant impact on customer satisfaction. This implies that service quality plays an important role in driving higher levels of customer satisfaction [10], [11], [12].

***Community Satisfaction***

Providing customer satisfaction is the desire of every company and apart from being an important factor for survival, it increases competitive advantage. Satisfaction refers to the feelings of pleasure or disappointment that result when a product’s perceived performance or outcome is compared with the expectations. Hence, the customer either feels dissatisfied if the performance falls short of the expectations or satisfied or delighted when expectations are matched [13].

Customer satisfaction is the feeling of pleasure or disappointment that arises after comparing the perceptions or results of a product with the expectations [14]. It is also a customer's evaluation of how well a product or service has met their needs and expectations [15].

Consequently, the research hypothesis can be formulated as follows:

**Table 1.** Research Hypothesis

<b>Hypothesis</b>	<b>Explanation</b>
H1	Reliability has a positive effect on community satisfaction
H2	Responsiveness has a positive effect on community satisfaction
H3	Assurance has a positive effect on community satisfaction
H4	Empathy has a positive effect on community satisfaction
H5	Tangibility has a positive effect on community satisfaction

Source: Primary data management, 2020

**3. METHODS**

The value of this novel study is to assess the KRL Access application through information services received by the community of Commuter line users in Jabodetabek in 2020.

Subsequently, the research employed a descriptive and quantitative approach and was performed at every train station in the Jabodetabek area. The data was obtained by distributing questionnaires to customers at the stations and conducting online surveys. Then, a total of 100 respondents were examined via convenience sampling. This was performed by collecting information from members of the population that were easily accessible and able to provide the required information. Thus, persons that were suitable data sources and capable of offering pertinent information through either accidentally or deliberately meeting with the researcher were used [16].

The initial step taken was to distribute questionnaires directly and online to persons between the ages of below 20 and over 40 years with various educational and occupational backgrounds for use as the respondent demographic data. Subsequently, the instruments used through the questionnaires contained statements about the factors affecting the satisfaction of the KRL Access application use, including reliability, responsiveness, assurances, empathy, and tangibility.

The questionnaires were distributed by using a Likert scale to measure the degree of the respondent's perception of a statement submitted by the researcher. Then, the resulting data were tested to analyze the validity and reliability of the measuring instrument used. The instrument was considered valid and capable of obtaining and evaluating the necessary data [17].

The second step was to process the research data using valid and reliable measurements for all the factors assessed to appropriately examine the user satisfaction with the KRL Access service quality. Consequently, the data analysis technique used was the multiple regression method to evaluate the effect of partially or simultaneously dependent variables on independent ones. Due to the type of analytical technique used, the classical assumption test was first performed, while the data was processed by employing SPSS version 21. The multiple linear regression equation used was:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + e \quad (1)$$

Information:

Y : Community Satisfaction

$\beta_0$  : Constant

$\beta_1... \beta_5$  : The coefficient of each independent variable

X1 : Reliability

X2 : Responsiveness

X3 : Assurance

X4 : Empathy

X5 : Tangible

e : Standard Error

## 4. RESULTS AND DISCUSSION

### *Description of Research Object*

The research data obtained from the 100 respondents was used as the sample. This was performed by distributing questionnaires to customers at the stations and conducting online surveys where the participants answered questions in full. The questionnaires included data on respondent characteristics such as gender, age, education, occupation, and duration of KRL Access use. From the data on the study characteristics, the percentage of females and males was 57.6% and 47.4% respectively. Those aged below 20 accounted for 14.6%, while the respondents aged between 20 to 30 and 30 to 40 years were 25.7% each. Furthermore, the candidates aged between 40 to 50 years constituted 20.6%, and those older than 50 years comprised 17.3%. The respondents with high school, vocational education, or the equivalent accounted for 33.5%, while those with diplomas, undergraduate, masters, or doctorate degrees constituted 8.6%, 23.5%, 32.8%, and 1.6% respectively. Also, the professions of the respondents were recorded and students, including those in college, accounted for 26.8%. Additionally, entrepreneurs, civil servants, private employees, and others comprised 4.1%, 7.9%, 33.8%, and 27.4% consecutively. The durations of KRL access use were below 1, 2, 3, and 5 years at 40.7%, 28.8%, 12.6%, 3.2%, and 14.7% respectively. Thus, these values showed the popularity of KRL Access in the past year.

### *Validity and Reliability Test*

The validity and reliability testing of the respondent variables is a procedure performed to ensure that the obtained data were suitable for analysis.

Based on the results of data processing, the questions for each variable were indicated as valid. This was because the calculated r score valued between 0.225 to 0.666 was greater than the r table result which was at 0.165. Therefore,  $r_{count} > r_{table}$ .

Furthermore, the reliability test results on each variable used were positive and all the parameters were designated as reliable. This was shown by the Cronbach alpha scores which ranged between 0.733 to 0.830, visibly greater than the standard value of 0.60.

### *Classic Assumption Test*

#### *Normality Test*

Normality test is a test that is carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not. Normality test is useful for determining data that has been collected is normally distributed or taken from the normal population

The normality was analyzed by using the Kolmogorov-Smirnov test and a result of 0.648 was obtained. This showed that all the variables had asymp value. Sig (2-tailed) above 0.05, and it was concluded that all the parameters were normally distributed and the regression model was feasible to use.

**Multicollinearity Test**

The multicollinearity test was used to determine the similarities between the independent variables in the study to those from a model. According to the results from the SPSS Coefficients table through the Variance Inflation Factor (VIP) all the variables had tolerance values > 0.1 and VIF < 10. ). The tolerance between 0,511 to 0,747 and the Variance Inflation Factor (VIP) between 1.339 to 1.673 Hence, it was stated that the multiple linear regression model was free from multicollinearity and was applicable in the research.

**Autocorrelation Test**

Autocorrelation refers to an association between members of observations arranged according to time or place. A good regression model should be devoid of autocorrelation.

From the SPSS output, the Durbin-Watson value for the regression model as the dependent variable was 1.964. The calculated values were between the upper (du) and lower limits (4-du) designated as  $du < dw < 4-du$  with scores of  $1.571 < 1.964 < 2.220$ . Therefore, the decision was taken in the absence of negative or positive autocorrelations, and the model was said to be free from this association.

**Heteroscedasticity Test**

Heteroscedasticity testing was used to analyze the presence of inequality from one observation to another. The regression model was presumed to be suitable if heteroscedasticity was avoided or lacking.

From the scatterplot graph, the dots were visibly spread randomly, either above or below the number 0 on the Y-axis. Therefore, heteroscedasticity was concluded to be nonexistent in the regression model.

**Analysis of the Determination Coefficient (R<sup>2</sup>)**

The coefficient of determination (R<sup>2</sup>) was used to measure the ability of the model to explain the variation in the dependent parameter. A value close to 1 meant that the independent variables provided almost all the information needed to predict this analysis. The results of the calculation of the coefficient of determination are shown in the following table:

**Table 2.** Coefficient of Determination

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.841 <sup>a</sup>	0.684	0.642	1.48714
a. Predictors: (Constant), X5, X2, X3, X1, X4				
b. Dependent Variable: Y				

Source: Primary data management, 2020

Based on the results in table 2, the coefficient of determination, R<sup>2</sup> had a value of 0.684. This meant that a large percentage of variation in community satisfaction was possibly explained by the five independent parameters which were Reliability (X1), Responsiveness (X2), Assurance (X3), Empathy (X4), Tangible (X5). This yielded a value of 68.4 %, while the remaining 31.6% was explained by causes outside the research model used.

**F-Test Results**

The F-test was used to determine the simultaneous effects of the independent variables on the dependent parameters and this is shown in the following table:

**Table 3.** F-Test Results ANOVA<sup>b</sup>

Model		Sum of Squares	df	F	Sig.
1	Regression	86.994	5	44.758	.000 <sup>a</sup>
	Residual	53.968	94		
	Total	120.951	99		
a. Predictors: (Constant), X5, X2, X3, X1, X4					
b. Dependent Variable: Y					

Source: Primary data management, 2020

Based on the output results in table 3, the F-count or F-statistic was estimated as 33.647, while the F-table with df 2 (n-k-1) = 94 was 3.093. Therefore, F-Count > F-Table with values of  $44.758 > 3.093$  at a significance < 0.05 ( $0.000 < 0.05$ ). This showed that the combined independent variables have significant effects on the dependent one.

**Multiple Regression Analysis**

The Multiple Linear Regression results are shown in the following table:

**Table 4.** Multiple Regression Results

Variable	B	t	Sig.
(Constant)	5.637	4.516	0.000
X1	0.097	2.328	0.003
X2	0.089	2.436	0.011
X3	0.248	7.455	0.000
X4	0.131	3.492	0.024
X5	0.165	3.564	0.006

Source: Primary data management, 2020

a. Dependent Variable: Y

Based on the results in table 4, the regression equation was obtained as follows:

$$Y = 5,637 + 0,097 X1 + 0,089 X2 + 0,248 X3 + 0,131 X4 + 0,165 X5 + \varepsilon$$

Furthermore, the results of the multiple linear regression equation yielded a constant value of 5.637. This showed that if the independent parameters Reliability (X1), Responsiveness (X2), Assurance (X3), Empathy (X4), Tangible (X5), were assumed to be in constant states, then the dependent variable Community Satisfaction (Y) will increase by 5.637.

This supported the first hypothesis that the variable reliability exerted a partially positive effect on community satisfaction. It was indicated by the X1 regression coefficient value of 0.097, which meant that every 1 unit rise in reliability increased the community satisfaction by 0.097 units. Also, the probability value was smaller than 5%, at  $0.003 < 0.05$  and this signified that reliability has a positive effect on community satisfaction. This was in line with researches conducted by Nguyen, M., *et al* (2015), Francis, J. & Richard, F. (2017), and Mudenda, C., & Guga, D. (2017) which revealed that a company's ability to provide a higher service will influence the level of community satisfaction. [10], [11], [12].

The results of the study also sustained the second hypothesis which stated that the responsiveness variable had a partially positive effect on community satisfaction. This was indicated by the X2 regression coefficient of 0.089, meaning that every 1 unit rise in responsiveness increased community satisfaction by 0.089 units. Also, the probability value was less than 5%, at  $0.011 < 0.05$  and this showed that responsiveness has a positive effect on community satisfaction. These results were in congruence with research conducted by Francis, J. and Richard, F. (2017), and Mudenda, C. & Guga, D. (2017) which suggested that fast or responsive services accompanied by clear and easy-to-understand delivery methods will affect the community satisfaction [11], [12].

Furthermore, the study outcomes supported the third hypothesis concerning the partially positive effect of the assurance variable on community satisfaction. This was indicated by the X3 regression coefficient of 0.248, which denoted that every 1 unit rise in assurance increased public satisfaction by 0.248 units. The probability value was less than 5% at  $0.000 < 0.05$  and indicated that assurance has a positive effect on community satisfaction. This corresponded with research conducted by Nguyen, M., *et al.*, (2015), Francis, J. & Richard, F. (2017), and Mudenda, C., & Guga, D. (2017) which stated that a company's ability to foster a guaranteed trust in customers through friendliness and knowledge of staff during service provision will impact community satisfaction [10], [11], [12].

Additionally, the fourth hypothesis that the empathy variable had a partially positive effect on community satisfaction was strengthened. This was indicated by the value of the X4 regression coefficient of 0.131 which showed that every 1 unit rise in empathy increased community satisfaction by 0.131 units. The probability value was smaller than 5% at  $0.024 < 0.05$  and this showed a positive effect of assurance on community satisfaction. It corroborated the research by Nguyen, M., *et al.*, (2015) and Mudenda, C., & Guga, D. (2017) which suggested that a company's attention to customers will affect the level of community satisfaction. [10], [11].

Finally, the fifth hypothesis which stated that the tangible variable had a partially positive effect on community satisfaction was supported. It was indicated by the X5 regression coefficient of 0.165 which signified that every 1 unit rise in empathy increased community satisfaction by 0.165 units. The probability value of less than 5% at  $0.006 < 0.05$  showed that assurance had a positive effect on community satisfaction. This was in line with research by Francis, J. and Richard, F (2017) and Mudenda, C., & Guga, D. (2017) which proposed that providing concrete evidence of a company's ability to perform the best for customers will influence the level of community satisfaction. [11], [12].

## 5. CONCLUSION

From the results of this study, reliability, responsiveness, assurance, empathy, and tangibility were all concluded to have positive and significant effects on the community's satisfaction with the KRL Access application. Therefore, a higher management reliability in services provision will cause a corresponding increase in community satisfaction and vice versa should poor service be provided. Also, the better the responsiveness or speed of services, the greater the community satisfaction, while the reverse will occur when the variable is lacking. Furthermore, higher assurance, guarantee, and certainty provided by PT KCI will increase community satisfaction, while the opposite will ensue if poor guarantees are offered. The greater the

empathy and care provided for community users, the higher the satisfaction, and vice versa if insufficient care is offered to the people. Also, with more tangible or physical evidence given by PT KCJ, the satisfaction of the society increases, and vice versa if poor evidence is provided. Finally, good service was shown to be vital to organizational success because it directly impacts a company's reputation.

### *Research Limitations*

The limitations of this study were the use of a questionnaire for data collection which likely caused the data to be subjective. Therefore, the addition of an interview method would make the obtained results more complete. Also, only the effects of service quality, particularly tangibility, reliability, responsibility, assurance, and empathy on customer satisfaction were examined. Thus, it is necessary to explore other variables such as security, ease of use, access, communication, and so on.

### **AUTHORS' CONTRIBUTIONS**

This research aims to test the level of customer satisfaction through information services on the Electric Rail Train (KRL) Access application by using the SERVQUAL method. This was implemented particularly on the Jakarta-Bogor route and was also performed to discover what service factors on the KRL Access required prioritization to meet community expectations.

### **ACKNOWLEDGMENTS**

The authors are grateful to RISTEKDIKTI for the research and publication funding assistance that was provided in the form of the PDP (Beginner Lecturer Research) implementation in 2020.

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