

## **Passengers' Perception of Service Quality of Intercity Public Transport: A Banjarmasin Case Study**

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**Abstract :** *Difference in perception frequently occurs between the service quality provided by the provider of public transport services and the passengers' expectation. The objective of this research was to identify the level of passengers' satisfaction of the service quality provided by intercity public transport in Banjarmasin. Furthermore, from the identification results, strategy priority on the service quality improvement was determined. An assessment of satisfaction and performance was divided into five determinants (reliability, assurance, tangibles, empathy, and responsiveness) which were described in 16 attributes of service quality. The attribute data were the results of the central tendency testing by using Wilcoxon signed-rank test. The assessment technique approach was subsequently used Importance-Performance analysis. From the analysis result, it is found that the service quality as the major priority for improvement are: (1) reliability includes arrival punctuality of intercity public transport in destination cities, (2) assurance includes security and safety of luggage and passengers guarantee, and the employees' friendliness in giving service, as well as (3) tangibles, especially for passengers' comfort on the vehicles. In addition, the performance that should be improved (low priority) is the attributes of the availability of complete supporting facilities and guarantee to problem solving.*

**Keywords:** *Importance-Performance analysis, intercity public transport, service quality.*

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### **I. Introduction**

In this globalization era, public transport services should have a sensibility towards the quality of services offered [1]. Good public transport services surely will be chosen by users. Such service is provided to give extra comfort to users in urban and rural areas to move [2]. In the case of a developing city, such as Banjarmasin, as an administrative city, it becomes a great generation and attraction for other cities. To support the movement, the intercity public transport services should be observed, especially in the quality of its service. The good quality of public transport services will reduce the actors' movement by using personal vehicles. In providing services, a difference in the quality of services given by the provider of transportation services and passengers' expectation frequently happens. In the context of dimension of transit service quality, in the same case for Inter Province Shuttle Service, Pati et al. in 2009 appointed issues frequently emerging is the inaccuracies in the recording of passengers' information, the uncertainty of passengers' pickup, and sometimes passengers' seat numbers being exchanged unilaterally by travel services providers. Other problems are the presence of less friendly attitude of employees, the drivers paying less attention to passengers' luggage while stopping at rest areas, passengers' complaints for the music volume to be turned down, drivers' drowsiness while driving, AC (air conditioner) which sometimes does not work, and drivers' delay in taking passengers to their destination [3].

The objective of this research was to identify passengers' perception of the service quality of intercity public transport, viewed from five determinants of service quality on SERVQUAL scale given by Parasuraman et. al. in 1988, including: reliability, assurance, tangibles, empathy, and responsiveness [4], as well as determining the service quality improvement strategies based on instrument of Importance - Performance analysis.

### **II. Literature Review**

#### **2.1 Service quality of and customers' satisfaction**

The understanding of the quality of service is consumers' responses to the services being consumed or perceived [5]. Parasuraman et al. in 1985 state that the service quality is determined by passengers' assessment on the results of services and service processes as well as the comparison of customers' expectation and service performance [6]. Therefore, the service quality can be considered corresponding to the level of service and customers' expectations currently. Park et al. define service quality as the overall consumers' impression on the efficiency of an organization and its service [7]. The understanding of customer satisfaction is the extent to which a level of product perceived in accordance with buyers' expectations [8]. Meanwhile, Zeithamal in 2004 formulates consumers' satisfaction as "the customer's evaluation of a product or service in terms of whether that product or service has met their needs and expectation or not" [9]. In relation to public transport, Olsen (2007) states that the users' satisfaction depends on the perception of the service quality, public transport users will

perceive the quality of the service and each person tends to have a different assessment of the service quality of public transport, and they will continue to use such public transport services if they feel satisfied [10]. From the definition, the service quality can be interpreted as an actual/existing performance perceived by consumers, meanwhile customer satisfaction is the performance expected by consumers.

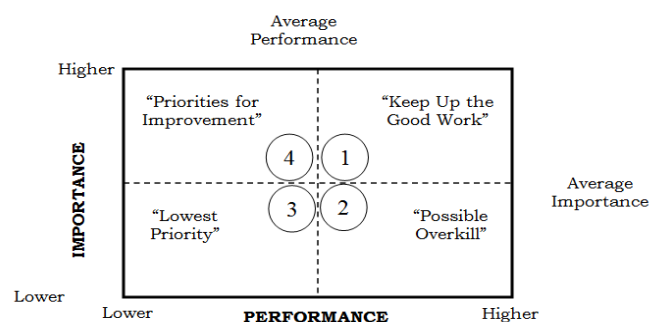
## 2.2 Determinants Of Service Quality

Determinants of service quality were developed by Parasuraman, Zeithaml, and Berry [6][11] and Zeithaml, Berry, and Parasuraman [12]. These determinants into dimensions widely used in research and practices on services [13]. Parasuraman et al. in 1985 conducted a special research on several kinds of service industry by grouping them into 10 determinants, i.e. access, communication, competence, courtesy, credibility, reliability, responsiveness, security, understanding, and tangible [6]. Furthermore in 1988, Parasuraman et al. conducted a repeated research on focus groups, both users and service providers. Finally, the results obtain that there is a very strong relationship among communication, competence, courtesy, credibility, and security which then grouped into one determinant, i.e. assurance. Similarly, they also find a very strong relationship between access and understanding which alter incorporated into empathy. Finally, Parasuraman et al. suggest five determinants of service quality [4]. Those five determinants basically explain various aspects of the services, such as reliability which shows the ability to perform reliable and accurate services as promised; assurance is the knowledge and politeness of employees and the ability to maintain the trust and confidence; tangibility involves the appearance of physical facilities and personnel; empathy shows concern in giving individual attention to customers; Responsiveness is the willingness to assist the customers and provide fast service [14][15].

## III. Research Methods

This research was a descriptive study with the aim to interpret those existing [16]. The data were collected through questionnaires to the respondents. Respondents' target was users of intercity public transport with a sample of 200 respondents. The questionnaire was divided into two parts. The first part was an individual characteristic data and the second data emphasized the determinants of service quality factors (tangibles, reliability, assurance, empathy and responsiveness). Assessment of the factors of service quality used a five-point Likert scale, ranging from; strongly disagree = 1, disagree = 2, neutral/certainly = 3, agree = 4 and strongly agree = 5. Research conducted by Perez et al. (2007) [17], Felleson & Friman (2008) [13], and Randheer et al. (2011) [1] have successfully used a five-point Likert scale in measuring the service quality. As the type of the data involved in the analysis can clearly explained, Likert scale is generally accepted as the interval measurement [18].

Passengers' satisfaction measurement technique used Importance - Performance (IP) analysis. Analysis technique was popularized by Martilla and James in 1977 in their paper entitled "Importance - Performance Analysis", it was operated using customer ratings of importance and performance obtained from a study of an automobile dealer's service department [18]. In this technique, the respondents were asked to rank various elements (attributes) of the offers based on the degree of importance of each element. In addition, the respondents were also asked to rank how good the company's performance in each element (attribute). In general, IP analysis application used 4 quadrants in the assessment on the average value as the data plot. Several researchers also used the median value as the data [18][19]. It is described clearly as presented in Fig. 1.



**Figure 1.** Template for a Quadrant Analysis [19]

The service quality attributes used was attributes directly perceived by users in the study area, as defined by Pati et al. [3]. It is in line with the opinion of Gronroos [20], stating that in order to measure the best and appropriate service quality, attribute/ element approach should be used according to what was experienced and desired by passengers. The number of attributes reviewed was as many as 16, with the description as the following:

- a. Reliability, including: timeliness of departure ( $X_1$ ), the timeliness of arrival/arrival time in destination city ( $X_2$ ), thoroughness in recording the passengers' data ( $X_3$ ), and ease of ticket payment, either directly on the counter or online ( $X_4$ ).
- b. Assurance, including: security and safety guarantee of luggage and passengers ( $X_5$ ), employees' friendliness, both on the counter or on the vehicles ( $X_6$ ), and drivers' expertise in driving the vehicles ( $X_7$ ).
- c. Tangibles, including: employee's appearance ( $X_8$ ), complete vehicle facilities, such as the availability of music/ TV, full air conditioning, completeness of fire extinguishers, first aid equipment, safety belts, plastic bags and bins, emergency lights, and disabled facilities ( $X_9$ ), supporting facilities, such as the availability of waiting rooms and comfortable rests, clean toilets, and clear information display ( $X_{10}$ ), the comfort on the vehicles, such as the cleanliness of the vehicle, vehicles with no unpleasant odor, not bouncy and not noisy vehicles while running, and good lighting ( $X_{11}$ ).
- d. Empathy, including: ease of services, such as via telephone, electronic media, or SMS gateway ( $X_{12}$ ), and problem solving guarantee experienced by passengers ( $X_{13}$ ).
- e. Responsiveness, including: providing fast information, such as contacting passengers if there is something required to be notified immediately ( $X_{14}$ ), the employees' willingness to assist passengers ( $X_{15}$ ), responsiveness towards passengers' demands ( $X_{16}$ ).

#### IV. Data Analysis And Result

##### 4.1 Data Description

The data were obtained from the direct surveys on 16 questions about intercity public transport services perceived (performance) and 16 questions on the expectations desired by the respondents (satisfaction/importance) by means of interviewing respondents who were waiting for departure. From the data collected, in terms of the age factor, it is known that 93.2% were older than 25 years old, and the average education taken is high school by 46.1% and undergraduate by 40.4%. From the age and level of education taken, it can be ascertained that the proposed questionnaire is understandable by respondents. The most type of respondents' job is civil servants, i.e. by 47.1 % and private sector workers, i.e. by 39.8%, it is in line with the purpose of the trip, i.e. working.

##### 4.2 Determination Of Central Tendency For Plotting The Data

Combined preference of perception data from 200 respondents in the form of a Likert scale was further taken for each value of its attribute. In this research, the determination of the combined preference used an approach of central tendency in the form of mean values and median values. Significance value of mean or median was tested by using Wilcoxon signed-rank testing. Indicator of significance compliance was that P-value should be greater than 0.05. In the testing, the first data used was the mean value. If the mean value was apparently insignificant, it should be retested by using median value. Results of the Wilcoxon signed-rank testing can be seen in Table 1.

**Table 1.** Value of Combined Preferences (Mean) of Service Quality Attribute

Code	Service Quality Attribute	Importance Rating		Performance Rating	
		mean	P-value	mean	P-value
X <sub>1</sub>	Timeliness of departure	4,14	0,055	4,10	0,639
X <sub>2</sub>	Timeliness of arrival	4,16	0,158	3,77	0,700
X <sub>3</sub>	Thoroughness in recording the passengers' data	3,86	0,092	3,87	0,242
X <sub>4</sub>	Ease of ticket payment	4,00	0,931	4,20	0,435
X <sub>5</sub>	Security and safety guarantee of luggage and passengers	4,15	0,093	3,80	0,715
X <sub>6</sub>	Employees' friendliness	4,13	0,051	3,63	0,351
X <sub>7</sub>	Drivers' expertise in driving vehicles	4,26	0,146	3,90	0,232
X <sub>8</sub>	Employees' performance	3,85	0,068	3,57	0,227
X <sub>9</sub>	Completeness of vehicle facilities	3,80	0,315	3,70	0,779
X <sub>10</sub>	Completeness of supporting facilities	4 *)	0,083	3,40	0,302
X <sub>11</sub>	Comfort on vehicles	4,20	0,054	3,83	0,485
X <sub>12</sub>	Ease of service	3,81	0,151	3,90	0,202
X <sub>13</sub>	Problem-solving guarantee	4 *)	0,178	3,57	0,157
X <sub>14</sub>	Providing fast responsiveness	4,26	0,208	4,10	0,321
X <sub>15</sub>	The willingness of employees to assist passengers	4,33	0,267	4,17	0,826
X <sub>16</sub>	Responsive to passenger demands	4,33	0,200	3,97	0,141

\*) using the median value

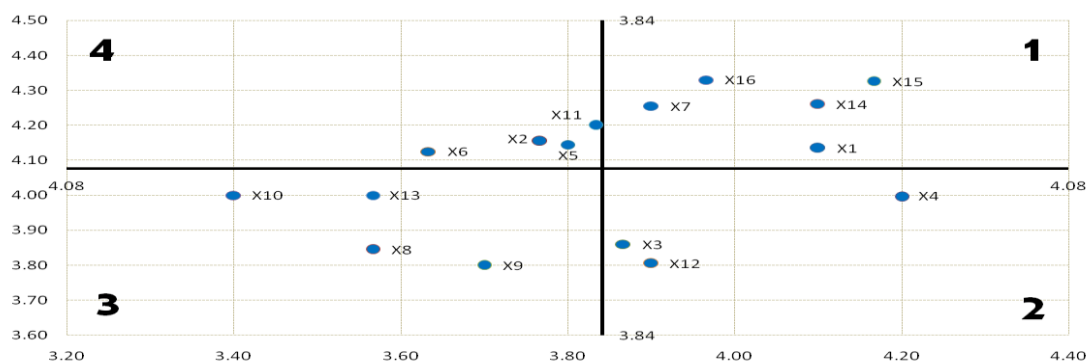
From Table 1 shows that almost the entire attributes of service quality can use the mean value as the combined preference data, except for the attributes of supporting facilities' completeness ( $X_{10}$ ) and problem solving guarantee ( $x_{13}$ ) in significant satisfaction rating ( $P\text{-value} \leq 0.05$ ), thus it was decided by using its median value.

### 4.3 Positioning The Value Of Service Quality Attributes In IP Grid

IP grid is formed from the total mean value satisfaction as the horizontal axis and performance assessment as its vertical axis. From the total mean value plotting, 4 quadrants will be formed that describe the level of service quality. The position of service quality level of each attribute can be obtained by plotting the value of each attribute in IP grid. The value of the attribute for the satisfaction (importance) and performance assessment can be seen in Table 2 and the positioning of each attribute in IP grid can be shown in Fig. 2.

**Table 2.** Value of Attribute Importance and Performance Rating

Determinant	Service Quality Attribute	Code	Rating	
			Importance	Performance
Reliability	Timeliness of departure	X <sub>1</sub>	4,14	4,10
	Timeliness of arrival	X <sub>2</sub>	4,16	3,77
	Thoroughness in recording the passengers' data	X <sub>3</sub>	3,86	3,87
	Ease of ticket payment	X <sub>4</sub>	4,00	4,20
Assurance	Security and safety guarantee of luggage and passengers	X <sub>5</sub>	4,15	3,80
	Employees' friendliness	X <sub>6</sub>	4,13	3,63
	Drivers' expertise in driving vehicles	X <sub>7</sub>	4,26	3,90
Tangibles	Employees' performance	X <sub>8</sub>	3,85	3,57
	Completeness of vehicle facilities	X <sub>9</sub>	3,80	3,70
	Completeness of supporting facilities	X <sub>10</sub>	4,00	3,40
	Comfort on vehicles	X <sub>11</sub>	4,20	3,83
Empathy	Ease of service	X <sub>12</sub>	3,81	3,90
	Problem-solving guarantee	X <sub>13</sub>	4,00	3,57
Responsiveness	Providing fast responsiveness	X <sub>14</sub>	4,26	4,10
	The willingness of employees to assist passengers	X <sub>15</sub>	4,33	4,17
	Responsive to passenger demands	X <sub>16</sub>	4,33	3,97
Total mean of all attributes' measurements			4,08	3,84



**Figure 2.** IP Map of attribute data values with overall data means as crosshairs

From IP map in Fig. 2, areas in need to be improved can be identified. Based on the explanation by Brandt [19] for each quadrant, each position of attributes can be described as follows:

1. First quadrant, "maintaining the performance" (high importance and high performance): attributes related to this quadrant is the departure timeliness (X<sub>1</sub>), drivers' expertise in driving vehicles (X<sub>7</sub>), providing fast information (X<sub>14</sub>), employees' willingness to assist passengers (X<sub>15</sub>), and responsiveness to passengers' demand (X<sub>16</sub>). Those attributes are deemed necessary by the passengers to be suitable with they perceived and it should be maintained as leading products/services in the eyes of passengers.
2. Second quadrant, "tend to be excessive" (low importance and high performance): attributes located in this quadrant thoroughly record the passengers' data (X<sub>3</sub>), ease of ticket payment (X<sub>4</sub>), and ease of service (X<sub>12</sub>). In general, these attributes are deemed less important by passengers and perceived excessive.
3. Third quadrant, "low priority" (low importance and low performance): in this quadrant, the services provided are deemed less important by passengers and, in fact, the performance is not too good. The attribute is the employees' appearance (X<sub>8</sub>), completeness of vehicles facilities (X<sub>9</sub>), completeness of supporting facilities (X<sub>10</sub>), and problem solving guarantee (X<sub>13</sub>).
4. Fourth quadrant, "increasing the performance" (high importance and low performance): the attributes positioned in this quadrant are deemed as very important factor by passengers but the current condition is not satisfactory as expected (the level of satisfaction obtained is still very low), such as the timeliness of arrival (X<sub>2</sub>), security and safety guarantee of luggage and passengers (X<sub>5</sub>), employees' friendliness (X<sub>6</sub>), and comfort on vehicles (X<sub>11</sub>). Attribute of service quality which is positioned in this quadrant is a priority for its quality improvement.

In general, attributes of service quality positioned in quadrants 1 and 2 are dominated by the attributes associated with administrative services and terminal services. Meanwhile, attributes in quadrants 3 and 4 show attributes of service quality while the passengers are on the vehicles and employees' personality while interacting.

#### **4.4 The Strategy For Service Quality Improvement**

From the result of 4-quadrant analysis, the service quality improvement strategy becoming the major priority is the attributes of service quality positioned in the fourth quadrant. There are four attributes of service quality that should be improved, i.e. in a sequence, from the lowest level of performance, namely; first, employees' friendliness, either while serving in the counter or on vehicles is less perceived by the users. Therefore, development of human resources is necessary so as to the employees are able of handling the passengers politely. Second, there should be arrival timeliness guarantee of intercity public transport to destination cities. In particular study area of (Banjarmasin), non availability of separate line for intercity public transport frequently happens, thus the travel time highly depends on the traffics flow smoothness. Such timeliness guarantee is strongly related to traffic management. Third, security and safety of luggage and passengers guarantee should be improved. Such security and safety guarantee is highly related to travel insurance. And the fourth is comfort on the vehicles, such as the vehicles' cleanliness, no unpleasant odor, not bouncy and not noisy vehicles while running, and good lighting. Comfort is highly related to the condition of the vehicles' maintenance and rejuvenation, therefore, vehicle roadworthy control should be improved.

In addition to the main priority above, intercity public transport managers need to consider improving the quality of service for attributes in quadrant 3, especially the completeness of supporting facilities, such as the availability of comfortable waiting and resting rooms, clean toilets, and clear information display. In addition, problem solving guarantee to passengers in case of problems should be present. Despite the benefit value perceived by passengers on these attributes is below the mean level of expected satisfaction, however, if being viewed from the position on the IP grid (importance value= 4), it has the potential to increase.

### **V. Conclusion**

Out of five determinants of service quality, based on passengers' perception of intercity public transport, there are only three determinants having low performance than the level of passengers' satisfaction. Those three determinants are major priority for service quality improvement, namely: (1) reliability, including; timeliness of arrival, (2) assurance, including security and safety of luggage and passengers guarantee, employees' friendliness, and (3) tangibles, especially the passengers' comfort on the vehicles. It is evident that those four attributes of service quality will be perceived by the passengers on the vehicles and while interacting with employees. Therefore, improvement on the performance (operational and condition) of vehicles and employees' personality needs to be noted. Besides, the performance of attributes of complete supporting facilities availability (tangibles dimension) and guarantee to problem solving (empathy dimension) should be considered as a second priority, since they have the potential to increase the satisfaction value.

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