Analysis of Passenger Satisfaction Level of Public Transportation on the Plaosan-Magetan Terminal Route

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ABSTRACT

In a competitive environment, the main priority for public transport service providers is passenger satisfaction, enabling them to survive, compete, and capture market share. This study aims to assess passenger satisfaction with the service performance of the Plaosan–Magetan route public transport and to identify the indicators influencing user satisfaction. The research employs the Importance Performance Analysis (IPA) method and adopts a descriptive survey approach. Data collection was conducted through interviews using a questionnaire administered to 100 respondents, gathering respondent characteristics and their attitudes toward service quality and passenger satisfaction variables. The results reveal that all six service dimensions exhibited negative gap values, indicating that, overall, the service provided by the Plaosan–Magetan route public transport does not yet meet customer expectations. Based on IPA analysis, five attributes were identified in quadrant one as top priorities for improvement: adequate passenger numbers according to vehicle capacity, mandatory accident liability coverage, operator identification via ID cards and uniforms, priority service for pregnant women, the elderly, people with disabilities, and children, as well as fare information. To enhance passenger satisfaction, this study recommends that public transport companies instill greater discipline among employees and establish clear standard operating procedures to be followed by all drivers.

Keywords: Public transport, Passenger satisfaction, Importance–Performance Analysis (IPA)

INTRODUCTION

Public transportation plays a vital role in supporting community mobility, especially in semi-urban areas such as Magetan Regency. The Plaosan Terminal – Magetan Terminal route is one of the main corridors serving residents' daily travel needs, including students, workers, and merchants. However, as demands for comfort and service efficiency increase, evaluating passenger satisfaction has become increasingly crucial. Passenger satisfaction is a key indicator of public transportation service performance. Satisfaction is influenced by several factors, such as punctuality, vehicle comfort, driver behavior, fares, and safety (Putra et al., 2022; Junianto, 2020). A study by Geurs and van Wee (2004) emphasized the importance of accessibility as an indicator of transportation performance, including ease of reaching destinations, travel time, and affordability. In the context of local routes such as Plaosan–Magetan, accessibility is a crucial factor for people living in hilly or suburban areas. Research by Tandirerung et al. (2023) shows that passenger demographic characteristics, such as age, gender, and occupation, also influence perceptions of public transportation service quality. Therefore, passenger satisfaction analysis needs to consider social and spatial variables unique to the Magetan area. To systematically assess and map service improvement priorities, the Importance-Performance Analysis (IPA) approach has proven effective. IPA enables the identification of service attributes based on two main dimensions: the level of importance and the degree of performance as perceived by users (Martilla & James, 1977).

The IPA method has been widely applied in transportation studies in Indonesia, such as for evaluating urban transit services (Sari et al., 2021), intercity bus services (Yuliana & Prasetyo, 2023), and other urban transit systems. By mapping service attributes into four quadrants—main priorities, maintain performance, low priority, and excessive—IPA provides a solid foundation for strategic decision-making by operators and local governments

Evaluation of public transport service quality has become a central theme in many studies, primarily to enhance user satisfaction and operational efficiency. One widely used approach is Importance-Performance Analysis (IPA), which maps service attributes according to their level of importance and performance from the users' perspective (Martilla & James, 1977).

In Indonesia, the IPA method has been applied in various local transportation studies. Solehatin and Purbohastuti (2019) combined IPA and SERVQUAL to assess the Rangkasbitung Commuter Line, demonstrating that reliability and route information were top priorities for service improvement. Internationally, Chou et al. (2020) employed IPA to evaluate urban bus services in Taiwan, finding that cleanliness, comfort, and accessibility significantly affect user loyalty. Additionally, Kuo & Yang (2021) in South Korea revealed that integrating IPA with multi-criteria analysis can enhance the accuracy of service attribute mapping in multimodal transport systems.

These studies highlight IPA as an effective tool for identifying strengths and weaknesses in public transport services and for developing data-driven improvement strategies. In the context of local routes such as Plaosan Terminal – Magetan Terminal, this approach is especially relevant for understanding the community's specific needs and drawing up actionable recommendations for local authorities. Notably, few studies have specifically assessed passenger satisfaction using the IPA method, despite this route's unique geographic and social characteristics, such as hilly terrain, limited fleet size, and diverse user backgrounds. Therefore, this study aims to:

- Identify service attributes considered important by passengers.
- Measure actual service performance based on user perceptions.
- Establish service improvement priorities based on IPA mapping results.

The findings are expected to provide strategic input for the Magetan Regency Transportation Agency and public transport operators in enhancing service quality and encouraging increased public usage of public transport.

MATERIALS AND METHODS

Research Location and Period

This study was conducted in July 2024, focusing on public transportation operating on the Plaosan–Magetan route. Data collection took place over three days: July 24, 28, and 29.

Population and Sample

The population comprised users of the public transport service. The sample size was determined using the Slovin formula, which provides a basis for obtaining a representative sample and thereby ensures the validity and generalizability of the findings.

Types and Sources of Data

Both primary and secondary data were used in this study. Primary data were collected by distributing questionnaires directly to respondents, while secondary data consisted of daily passenger counts.

Research Instrument

The instrument utilized was a Likert-scale questionnaire designed to measure respondents' opinions, attitudes, and perceptions. The questionnaire consisted of two main parts:

1. Importance (Variable X): used to measure the significance of service performance indicators for respondents.

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2. Performance (Variable Y): used to assess the level of respondent satisfaction with service performance indicators.

Data Collection Technique

Data collection involved field surveys for both primary and secondary data. Primary data were obtained through field observations and the distribution of questionnaires to passengers on the Plaosan–Magetan route. The questionnaire was developed according to predetermined characteristics and employed a five-point Likert scale to gauge respondents' views on the importance and satisfaction related to the service. Collection of questionnaire responses was carried out via the Google Forms platform.

Data Analysis Technique

Data analysis was performed using both the Operational Performance method, as defined by the Directorate General of Land Transportation, and Importance Performance Analysis (IPA). The operational performance method was used to assess terminal performance based on field survey data, while IPA was applied to analyze user responses from the distributed questionnaires.

RESULTS AND DISCUSSION

The demographic characteristics of respondents in this study include gender, age, occupation, and income. Data collected from the questionnaire resulted in a total of 100 respondents.

Table 1. Respondent Characteristics

No	Characteristics	Value in Number	Percentage
1	Gender:		
	Male	18	18
	Female	82	82
2	Age:		
	12-20 years	15	15
	20-30 years	10	10
	30-40 years	17	17
	40-50 years	46	46
	>50 years	12	12
3	Occupation categories:		
	Student/ College Student	22	22
	Private Employee	3	3
	entrepreneur	54	54
	Civil Servant	1	1
	Housewife	6	6

	Project Worker Teacher	5 9	5 9
	Total	100	100

The majority of public transport users on the Plaosan–Magetan route are female (82%). The largest age group of users is 40–50 years old (46%), indicating that this service is predominantly utilized by individuals in their productive years. In terms of occupation, most public transport users are entrepreneurs (54%), which highlights the crucial role of public transport as a primary connector between residential areas and workplaces.

Validity and Realibility Testing

Validity testing was conducted on the questionnaire related to both the actual and expected conditions of passengers. The validity test was performed to determine whether the question items in the questionnaire were appropriate for collecting respondent answers. Validity assessment was carried out using SPSS software, with decisions based on whether the computed correlation (Corrected Item-Total Correlation) exceeded the critical value from the correlation table. In this study, validity testing involved 100 respondents, with a correlation table value of 0.195 at a 0.05 significance level. Further evaluation using Pearson Correlation results in SPSS demonstrated that the calculated correlation for each attribute exceeded the table value. For example, the first attribute regarding importance had a corrected correlation value of 0.89375, which was greater than 0.195, indicating that the questionnaire items were valid. This validation allowed the process to continue to the next stage.

Reliability testing is considered successful when respondent answers are consistent or stable over time. Reliability for each research variable was assessed using Cronbach's Alpha. A variable is deemed reliable if the Cronbach's Alpha coefficient is greater than 0.60 (Arikunto, 2017:89). Reliability testing was performed using IBM SPSS Statistics 25, referencing the Reliability Statistics output table. The Cronbach's Alpha coefficient for the importance data was found to be 0.927, and 0.916 for performance data. As both coefficients are greater than 0.6, the questionnaire is considered to have very high reliability. Thus, responses from 100 participants to 15 questions met the criteria for subsequent data analysis.

Importance Performance Analysis

IPA analysis employs the Cartesian diagram. The analysis process involves calculating the horizontal axis (X), which represents service quality scores, and the vertical axis (Y), which indicates expectation scores. The average scores for performance and expectations are used to determine the intersection point on the Cartesian diagram, which then divides the diagram into four quadrants

Table 2. Result Of Gap Value Calculation

Comfort	**Importance**	**Satisfaction**	**Gap**
1. All passengers get a seat.	4,95	2,22	-2,73
2. There are windows that can be opened and closed	4,95	4,55	-0,4
3. There is a trash bin or plastic bag available inside the public transport vehicle	3,95	1,22	-2,73
Safety			
4. The driver is in a healthy condition	4,95	4,22	-0,73

5. The driver knows the route being served, is skilled in operating the vehicle, and is polite to passengers.	4,95	4,91	-0,04
6. There is a flashlight available.	4,67	3,5	-1,17
7. There is mandatory liability insurance for traffic accidents.	4,95	3,22	-1,73
Security			
8. The driver has an ID card and wears a uniform.	4,95	3,22	-1,73
9. There is route information (destination/ route served) complete with the transportation department logo	4,95	4,3	-0,65
10. There is information about the type of service (class and name of the public transport company).	4,67	3,47	-1,2
Affordability			
11. Services are provided according to the predetermined route	4,95	4,95	0
12. There is a fixed fare charged to passengers	4,94	4,04	-0,9
Equality:			
13. Pregnant women, the elderly, people with disabilities, and children are given priority when boarding and alighting.	4,97	3,22	-1,75
Regularity			
14. Fare information is available	4,9	3,51	-1,39
15. There is route or destination information for the service provided	4,95	4,11	-0,84

Source: Data Analysis

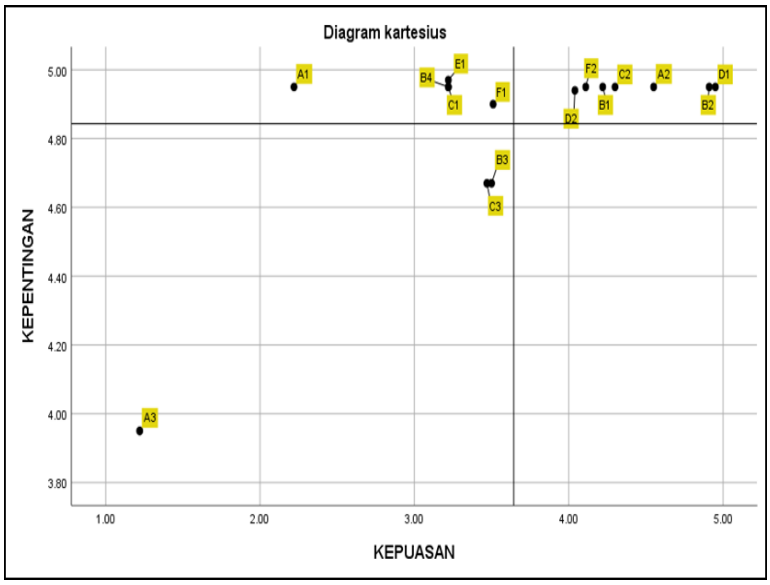

Figure 1. Quadrant Analysis

Source: Data Analysis

The results of the Importance-Performance Analysis (IPA) revealed a discrepancy between passenger expectations and the actual service provided on the Plaosan–Magetan public transport route. Most attributes had negative gap values, indicating that passenger satisfaction levels did not align with their expectations. Attributes with the largest negative gaps, such as seat availability (Gap: -2.73), uniformed drivers (Gap: -2.73), and use of dedicated lanes (Gap: -2.73), were located in Quadrant II of the IPA Cartesian diagram. This position signifies that these attributes are highly important to passengers but are not sufficiently fulfilled. These findings are consistent with the study by Aldri Frinaldi et al. (2020), which identified the quality of driver service as a key factor influencing passenger satisfaction in public transport. Additionally, amenities for priority groups—pregnant women, the elderly, and people with disabilities (Gap: -1.75)—also showed notable dissatisfaction, underscoring the need for an inclusive approach in public transport design and operations, as suggested by Geurs & van Wee (2004) in accessibility research. Attributes found in Quadrant I, such as careful driver behavior (Gap: -0.04) and affordable fares (Gap: 0.00), indicated high passenger satisfaction regarding these crucial service aspects; these should be maintained as operational standards. Solehatin & Purbohastuti's (2019) study on the Commuter Line also demonstrated that driver behavior and fare affordability are among the most valued attributes. Meanwhile, attributes such as fare information (Gap: -1.69) and route information (Gap: -0.84) occupied an intermediate position, indicating the need for enhanced transparency and service communication. Research by Chou et al. (2020) in Taiwan and Kuo & Yang (2021) in South Korea also emphasizes that clarity of fare and route information significantly affects public transport user loyalty. In summary, these findings show that improving public transport service quality requires attention not only to technical aspects of vehicles but also to information management, driver professionalism, and service inclusivity. The IPA approach has proven effective in identifying priorities for improvement and formulating strategies based on user perceptions.

CONCLUSION

This study examined passenger satisfaction with public transport services on the Plaosan–Magetan route using the Importance-Performance Analysis (IPA) approach. The results indicate that most service attributes had negative gap values, highlighting a mismatch between user expectations and actual service experiences. Attributes with the largest gaps, such as seat availability, driver identification (uniforms), use of dedicated lanes, and facilities for vulnerable groups, fall into the top-priority quadrant and require immediate attention from service providers and transport authorities. Conversely, attributes such as careful driver behavior and fare affordability demonstrated high satisfaction and should be maintained. These findings affirm that improving public transport service quality depends not only on technical aspects of vehicles but also on operator professionalism, information transparency, and inclusive service design. The IPA method has been shown to be effective in identifying user perception-based improvement priorities. This research provides a robust groundwork for the formulation of local transport policies that are more responsive to community needs and supports targeted, sustainable service improvements.

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