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The perceptions and satisfaction index of Yogyakarta's citizens on congestion and air pollution

Putri Wulan Ristanti[1] and Suryanto Suryanto[1,2]

Abstract: Yogyakarta City is one of Indonesia's most popular tourist destinations. The tourism sector is the highest tax revenue for local government. Besides, tourism gives high revenue but also negatively impacts the citizens as hosts, such as congestion and pollution. This study was conducted to determine the importance level of each attribute on the quality of congestion and air pollution management services in Yogyakarta based on the citizen's perception by utilizing the Importance Performance Analysis (IPA) method. This study also aimed to determine the Yogyakarta citizens' satisfaction level with managing congestion and air pollution using the Customer Satisfaction Index (CSI) method. This study implemented a purposive sampling technique which was then obtained from the population sample of 100 respondents with 86 saturated samples. Based on the perception of the Yogyakarta citizens, The results showed that a high level of attributes included wide and comfortable pavements, trees that block the sunlight and have a cooling effect, motorists who obeyed traffic signs, and drivers who drive well. The Yogyakarta Citizens' satisfaction index result showed 60.54%, which has the category of "very poor".
Keywords: Tourism; Congestion; Air Pollution; Citizen's Perception; Service Quality; Community Satisfaction
JEL Classification: Q53; R11; Z32

Introduction

Yogyakarta City is one of the tourist destinations in Indonesia, with the number of visitors reaching 4 million people per year. The average proportion of visitors is one million foreign and 3.5 million local tourists. During the COVID-19 pandemic, the number of visitors, both locals, and foreigners, decreased by 1.3 million per year (Warta Jogjakota, 2022).

The tourism sector's contribution (Provision of Accommodation, Food and Drink) to the City of Yogyakarta reached 13.79 percent in 2019. It has made tourism a leading sector over the past three years. Yogyakarta's government must continually try to improve the quality of tourism services in order to increase tourism's contribution. The challenges and demands of the market make the government strive to create a livable city for tourist destinations.

According to the government sector, it is necessary to develop and facilitate tourism spots so that tourism can contribute to economic development (Suastika & Yasa, 2015; Lankford, 1994). Apart from high contributions, the government recognizes that the expansion of the tourism sector is projected to boost the importance of sectors other than tourism (Lankford, 1994).

Yogyakarta City residents engage in diverse activities that coexist with tourism, resulting in increased mobility during peak periods. According to Ilham (2021), when too many people live in an area, they use up a lot of resources like water and fuel. It can harm the environment and get worse and worse. The government should control and take steps to ensure the environment gets under less pressure. Wafiq and Suryanto (2021) also stated that an increasing population would increase food, clothes, and transportation demand. Zuhri (2014) findings, more specifically, said population density would harm pollution. In line the increasing of population, the high growth in the number of motor vehicles without adjustment to the increase in road length results in congestion at a certain point (Mondschein & Taylor, 2017).

The existence of congestion is one of the factors causing the decline in air quality in the city of Yogyakarta (Murad et al., 2010, Ahmad et al., 2005, and Patz et al., 2014). Air pollution caused by the large volume of motor vehicles on the roads will negatively impact health (Dinda, 2004). Chemicals that are dangerous to be inhaled continuously for a long or even short will cause various respiratory diseases that impact health (Künzli et al., 2000).

Something often forgotten by the government is the perception of the citizens living in tourist destinations. Kim and Park (2013) stated that the existence of tourism causes a negative perception of the citizens on the environmental aspects, and the existence of passing tourist transportation causes air quality to decline. In line with Kim and Park (2013), Keith and Boley (2019) also prioritized tourist destinations to maintain air quality so that local citizens are not harmed by poor air quality, which can cause respiratory problems. On the other hand, the research of Ahmad et al. (2019) declared that tourism does not have a negative environmental impact, especially in decreasing air quality. It is because the local government implements an environmentally friendly transportation policy in its mass transportation. Beladi et al., (2009) confirmed that another alternative to maintaining environmental quality due to tourism is to include pollution costs in tourism rates.

Several studies have focused on how to measure the level of congestion (Wang et al., 2009 and Ahmad et al., 2016); to calculate the cost of congestion (Zhao, 2010), and to explore the factors that cause congestion (Koetse & Rietveld, 2009). Community activity can lead to more congestion and pollution, but if planned carefully, it can help speed up development in the area (Mondschein & Taylor, 2017).

In contrast to earlier studies, this research focuses on the community's perspective as a host for tourism activities. The novelty of the research is the measurement of the perception of citizens. The citizen's perceptions should be government consideration in

development planning (Alemayehu & Bewket, 2017). This study analyzed the level of importance and the level of service quality performance based on the perceptions of the Yogyakarta citizens. The purpose of this study is to observe which ones should be improved using the Importance Performance Analysis (IPA) method (Achterkamp et al., 2011; Lee, 2018). Additionally, this study aims to examine the satisfaction index of Yogyakarta citizens using the Customer Satisfaction Index (CSI) (Husna & Syukri, 2014). Yogyakarta is a tourism destination based on the government's efforts to overcome congestion and air pollution.

Research Method

The research method involves using mixed methods to analyze data. These methods include using IPA and CSI Analysis. The first stage is to collect data, the second is to analyze the data, and the third is to find gaps and index scores.

This research commenced by observing phenomena in the field, including observing the main road in Yogyakarta. Some of the roads in Yogyakarta experienced an increase in vehicle volume during peak hours, such as Malioboro Road, Botanical Gardens Road, Rotowijayan Road, Panembahan Senopati Road. Based on observations, problems can be formulated regarding the perception of Yogyakarta citizens towards the efforts of the Yogyakarta City Government in overcoming congestion and air pollution.

The next step was to conduct a literature study to obtain the theory or secondary data needed to support the research. Then, the researchers conducted observations and interviews. Observations were made to explore problems in the field and search for justification according to experts during the interview. Meanwhile, interviews were conducted at the Transportation Department of Yogyakarta as the executor of policies in related fields, such as traffic, transportation, and public transport. At this stage, the interview was performed to deepen the information related to the attributes to be used in the research based on the policy implementer's explanation in the transportation field.

The next step was collecting primary data on the perception of the Yogyakarta citizens regarding service quality using a questionnaire. The questionnaire in this study collected data in the form of a Likert scale with five answer choices. It comprised strongly disagree, disagree, neutral, agree, and strongly agree. Slamet (2006) stated that the use of the Likert scale could develop various answers, but it is still within the framework of a five-score scale. Each of these will obtain an assessment score based on citizens' perceptions. The citizens' perception in this study was based on how they felt about the efforts made by the Yogyakarta City Government to overcome congestion and air pollution.

The quality of service used in this study was based on 5 (five) criteria according to Tjiptono and Chandra (2017). First, the Tangible dimension assessed the physical condition of public transportation facilities (T1), the cleanliness of public transportation facilities (T2), the presence of a parking lot that is strategic and in good condition, the clarity of traffic

signs, the presence of trees, and Green Open Space (*Ruang Terbuka Hijau* or RTH), the condition of the bicycle path, and the location of the bicycle parking.

Second, the Reliability dimension assessed the reliability of drivers and public transportation officers in providing services, the reliability and orderliness of motor vehicle drivers, parking officers who provide services, and police officers in performing their duties to regulate traffic order.

Third, responsiveness measured how well the city government responded to complaints, such as public transportation users, parking service users, and pedestrians. The next dimension was assurance, which assessed the friendliness and politeness of public transportation officers in serving public transportation users, trustworthy parking attendants, police officers in providing safe and comfortable services, and vigilance for every driver to drive well and not harm others. Finally, the Empathy dimension assessed the clarity of information provided by public transportation officers, the sincerity of parking attendants in providing parking services, legal certainty and justice provided by police officers, and the sense of comfort provided by the City Government due to adequate RTH.

The experimental questionnaire was distributed via Google Forms on February 2021 until May 2021. The data of the questionnaire was examined for its validity and reliability. The validity test in this study used SPSS 16.0 software to determine the value of r statistics. If the questionnaire has been tested valid and reliable, the questionnaire will be distributed widely to the Yogyakarta citizens based on the purposive sampling technique.

In this study, the use of samples for an unknown population will be sufficient if the sample has reached saturation. The saturated sample in this study was 86 respondents. Based on the Sampling Criteria, the total number of samples used in this study was 100 respondents. The methods used in this research were Importance Performance Analysis (IPA) and Customer Satisfaction Index (CSI). The IPA method developed by John A. Martilla and John C. James was used to analyze service quality performance based on the level of importance and level of performance (Cole & Neumayer, 2004; Ha & Park, 2021). In this study, service quality assessment was assessed based on the perception of Yogyakarta citizens based on the level of expectation and level of reality (Rulleau et al., 2014; Tripathi & Mishra, 2017).

This study implemented Quadrant Analysis and Gap Analysis in the Natural Science method (Immanuel & Setiawan, 2020); (Tjitrohartoko & Saraswati, 2020). First, Quadrant Analysis classified the attributes according to the expectations and the reality level. The attributes in each quadrant indicated how the attribute would be treated, whether it was enhanced, retained, reviewed, or removed. Quadrant I (Main Priority) contained attributes with a high expectation level, but performance in the field was still low. Quadrant II (Maintain Achievement) contained attributes with high expectations and performance in the field. Quadrant III (Low Priority) contained attributes with low expectations and performance levels. Quadrant IV (Excessive) contained attributes that have a low level of expectation but high performance.

Second, Gap Analysis was used to determine the difference between the actual and expected performance levels. If the gap is positive, the perception score exceeds the expected score. Thus, the Yogyakarta citizens are satisfied with the management and supporting facilities in overcoming congestion and air pollution in Yogyakarta as a City of Tourism. Meanwhile, if the gap is negative, the expected score is greater than the perception score. Hence, it is necessary to improve management and supporting facilities to overcome congestion and air pollution in Yogyakarta as a City of Tourism.

Husna and Syukri (2014) The CSI method was used to determine the satisfaction index of the Yogyakarta City Community towards the efforts of the Yogyakarta City Government in overcoming congestion and air pollution. Community satisfaction was assessed based on their feelings about the Yogyakarta City government's supporting facilities in overcoming congestion and excess air pollution. Table 1 shows CSI criteria.

Table 1 CSI criteria

Index Figures	Interpretation
CSI ≤64%	Very poor
64%<CSI≤71%	Poor
71%<CSI≤77%	Cause for concern
77%<CSI≤80%	Borderline
80%<CSI≤84%	Good
84%<CSI≤87%	Very good
87%<CSI	Excellent

Source: (Husna & Syukri, 2014)

Result and Discussion

Descriptive statistics

The division of the groups was based on the residence status of the respondents, namely the native citizens' of Yogyakarta, citizens' who have lived in Yogyakarta City, and citizens outside Yogyakarta who frequently cross the roads of Yogyakarta (at least five times a week). The characteristics of the respondents based on the age group were dominated by the age group 17-26 years, i.e., 82 people. Meanwhile, the smallest age group of respondents was 47-56 years, with only one percent. The 27-36 year age group participated for six percent. The 37-46 year age group participated for four percent while the 57-64 year age group participated for seven percent.

The group of respondents based on gender on the questionnaire was dominated by female respondents 69% and male respondents 31%. The characteristics of respondents based on occupation in the questionnaire were dominated by college students 64% of the total 100 respondents. Private employees followed it at ten percent, State Civil Apparatus at ten percent, homemakers at four percent, and self-employed and Civil Servant retirees at two percent. Meanwhile, eight percent of other jobs consisted of drafter, nurse, student, customer service, IT Technical Consultant, security, admin, and online motorcycle taxi drivers.

Table 2 Respondents Characteristics

No	Categories	Number of Respondents	Percentage
Age (years old)			
1	17-26	82	82
2	27-36	6	6
3	37-46	4	4
4	47-56	1	1
5	57-64	7	7
Sex (person)			
1	Male	31	31
2	Female	69	69
Occupation			
1	Student	64	64
2	Business	2	2
3	Private Worker	10	10
4	Civil Servant	10	10
5	Civil Servant Retiree	2	2
6	Housewife	8	8
7	others	8	8
Classification of Respondents (17-64 years old)			
1	Native citizens of Yogyakarta who are recorded on the National Identity Card (KTP)	32	32
2	Citizens who have lived in Yogyakarta	25	25
3	Citizens outside Yogyakarta who often cross the streets of Yogyakarta City (at least five times a week)	43	43

Public Perception of Efforts to Overcome Congestion and Air Pollution

The importance Performance Analysis (IPA) method was used to determine the level of importance and performance using the expectation level approach and the level of reality. According to respondents' assessments, IPA measured the Yogyakarta City Government's success in overcoming congestion and air pollution. The level of expectation was an assessment according to the perception of the Yogyakarta citizens based on what they wanted. Meanwhile, the reality level was evaluated based on the perceptions of the inhabitants of Yogyakarta, which were derived from field observations and citizen sentiments. Yogyakarta Citizens' perceptions were used to assess the quality of congestion and air pollution management services by the Yogyakarta City Government. This study used five service quality dimensions: tangible (physical evidence), responsiveness, reliability, assurance, and empathy.

Quadrant Analysis

The step taken using the IPA method in the first quadrant analysis was to calculate the average of each attribute at the level of expectation and level of reality. After obtaining the mean level of expectation and level of reality, then it determined the mean of the mean level of expectation and level of reality to determine the point of intersection on the Cartesian diagram. The following is a calculation of the mean for each level of expectation and level of reality:

Table 3 Calculation Results of Mean Expectation Levels

Attribute	Expectancy Level	Mean	Attribute	Expectancy Level	Mean
T1	457	4,57	R6	434	4,34
T2	476	4,76	RS1	440	4,4
T3	423	4,23	RS2	449	4,49
T4	451	4,51	RS3	442	4,42
T5	451	4,51	RS4	451	4,51
T6	454	4,54	RS5	445	4,45
T7	467	4,67	A1	454	4,54
T8	444	4,44	A2	456	4,56
T9	441	4,41	A3	465	4,65
R1	448	4,48	A4	460	4,6
R2	430	4,3	E1	449	4,49
R3	462	4,62	E2	440	4,4
R4	420	4,20	E3	452	4,52
R5	445	4,45	E4	456	4,56
Mean					4,486

Note: attributes represent the qualitative types of characteristics of each of the variables in this study. Code of attributes, T=Tangible; R=Realibility; RS=Responsibility ; A=Assurance; E=Empathy. (See appendix)
Source: Primary data from processed respondents (2020)

Table 4 Calculation Results of Mean Level of Reality

Attribute	Level of Reality	Mean	Attribute	Level of Reality	Mean
T1	323	3,23	R6	318	3,18
T2	319	3,19	RS1	294	2,94
T3	356	3,56	RS2	314	3,14
T4	301	3,01	RS3	293	2,93
T5	301	3,01	RS4	304	3,04
T6	283	2,83	RS5	294	2,94
T7	261	2,61	A1	330	3,3
T8	273	2,73	A2	314	3,14
T9	263	2,63	A3	283	2,83
R1	275	2,75	A4	333	3,33
R2	329	3,29	E1	333	3,33
R3	270	2,7	E2	295	2,95
R4	232	2,32	E3	317	3,17
R5	279	2,79	E4	317	3,17
Mean					3,00

Source: Primary data from processed respondents (2020)

According to Table 3, the mean expectation of respondents' perception is 4,486. The highest expectancy level reached 4,76, and the lowest expectancy level was 4,2. The result of the mean expectancy level informs us that citizens' expectancy is high.

According to Table 4, the highest level of reality reached 3,56, and the lowest reached 2,61. In general perception of Yogyakarta, citizens are 3,00. It means that residents' perceptions still need improvement in the performance of congestion or air pollution.

After calculating the mean level of expectation and reality along with the intersection of the Cartesian diagram with the coordinate point (3.001; 4.486), the final step was to categorize each attribute on the Cartesian diagram so that it can be grouped by quadrant. In each quadrant, it was known how these attributes would be treated, whether it was enhanced, maintained, reviewed, or removed. The following is a grouping of attributes on a Cartesian diagram:
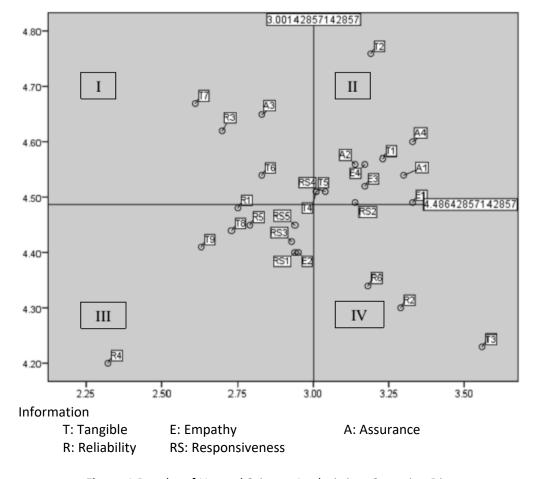

Information

T: Tangible	E: Empathy	A: Assurance
R: Reliability	RS: Responsiveness	

Figure 1 Results of Natural Science Analysis in a Cartesian Diagram

Quadrant I

The attributes contained in quadrant I are located at the coordinate point [(0.00-3.00) - (4.486-4.67)], which has the highest effect on service quality. The attributes in this quadrant have characteristics that are considered important by the Yogyakarta citizens, but their performance is not yet fully felt. Therefore, the Yogyakarta City Government, through related agencies, can focus on management to reduce congestion and air pollution in Yogyakarta City in this quadrant. Following are the attributes contained in quadrant I; (T6) The pedestrian path is wide and comfortable, (T7) There are shady trees, (R3) The drivers obey the traffic signs, (A3) The drivers drive well.

Quadrant II

The attributes contained in quadrant II are located at the coordinate point [(3,00-3,33) - (4,76-4,486)]. The attributes have characteristics that are considered important by the Yogyakarta citizens, and their performance can be felt to reduce congestion and air pollution in Yogyakarta. The attributes in this quadrant are good and satisfying, so they must be maintained and improved. Following are the attributes contained in quadrant II; (T1) Condition of public transportation facilities, (T2) Cleanliness of public transportation facilities, (T4) Strategic location of parking lots, (T5) Good and proper parking space, (RS2) Responsibility of police officers in regulating traffic, (RS4) Responsibility of City Government in serving complaints about pedestrian paths, (A1) Friendliness of drivers/public transportation officers, (A2) Trustworthy parking attendants, (A4) Police officers serving safely and comfortably, (E1) Clarity of information from drivers/public transportation officers, (E3) Justice and legal certainty for police officers, (E4) The effort of City governments to build green open space.

Quadrant III

The attributes contained in quadrant III are located at the coordinate point [(0.00-3.0014) - (0.00-4.4864)]. The attributes have characteristics of a low level of performance and importance in overcoming congestion and low air pollution. A low level of importance means that the attributes in this quadrant have a low priority. In this study, the attributes in quadrant III tend to approach the average borderline of the level of importance. Therefore, the performance of the attributes in this quadrant should still be considered to increase community satisfaction. Following are the attributes contained in quadrant III; (T8) The visible bicycle path, (T9) Availability of bicycle parking, (R1) Obedience of public transportation drivers in driving, (R4) Competency certificates that are owned by parking attendants (R5) Bicycle users who use their lanes, (RS1) Responsiveness drivers/public transportation officers, (RS3) Parking attendant responsiveness, (RS5) City government responsiveness in serving bicycle lane complaints, (E2) Parking attendants that are sincere in their services.

Quadrant IV

The attributes contained in quadrant IV III are located at the coordinate point [(3.001-3.560) - (0.00-4.486)]. They have characteristics of a high level of performance in overcoming congestion and air pollution. However, these attributes are not considered important for Yogyakarta citizens. Excessive levels of performance and low levels of importance require Yogyakarta City Government to reconsider the attributes in this quadrant. What can be done is to allocate resources to attributes that have high priority. Following are the attributes contained in quadrant IV; (T3) Clarity of traffic sign information, (R2) Services provided by public transportation officers, and (RS6) Police officers who can manage traffic properly.

Citizens Satisfaction Analysis Using the CSI Method

Analysis using the CSI method was used to determine how much satisfaction the Yogyakarta citizens have with the efforts made by the Government of Yogyakarta City in overcoming congestion and pollution viewed from the level of expectation and level of reality. The first step that must be done is to determine the average of the total Y values, namely the Mean Importance Score (MIS). The next step was to determine the Weight Factors (WF) by dividing the MIS of each attribute by the number of MIS multiplied by 100%. Then, it was to find the average number of X values, namely the Mean Satisfaction Score (MSS). After identifying the MSS, then it should search for Weight Score (WS) by multiplying the MSS of each attribute by the MIS of each attribute multiplied by 100%. Then, CSI can be found by dividing the WS with the highest Likert scale score. These calculations can be displayed in the Table 5:

Table 5 Calculation of the Customer Satisfaction Index (CSI)

No	Attribute	Expectation Level (Y)		Level of Reality (X)		WF	WS
		Sum of Y Values	MIS value	Sum of X Values	MSS Value		
1	T1	457	5	323	4	0.037	0.148
2	T2	476	5	319	3	0.037	0.111
3	T3	423	4	356	4	0.030	0.119
4	T4	451	5	301	3	0.037	0.111
5	T5	451	5	301	3	0.037	0.111
6	T6	454	5	283	3	0.037	0.111
7	T7	467	5	261	3	0.037	0.111
8	T8	444	4	273	3	0.030	0.089
9	T9	441	5	263	2	0.037	0.074
10	R1	448	5	275	2	0.037	0.074
11	R2	430	4	329	3	0.030	0.089
12	R3	462	5	270	2	0.037	0.074
13	R4	420	5	232	2	0.037	0.074
14	R5	445	4	279	3	0.030	0.089
15	R6	434	5	318	3	0.037	0.111
16	RS1	440	4	294	3	0.030	0.089
17	RS2	449	5	314	4	0.037	0.148
18	RS3	442	5	293	3	0.037	0.111
19	RS4	451	5	304	3	0.037	0.111
20	RS5	445	5	294	3	0.037	0.111
21	A1	454	5	330	3	0.037	0.111
22	A2	456	5	314	3	0.037	0.111
23	A3	465	5	283	3	0.037	0.111
24	A4	460	5	333	4	0.037	0.148
25	E1	449	5	333	3	0.037	0.111
26	E2	440	5	295	3	0.037	0.111
27	E3	452	5	317	4	0.037	0.148
28	E4	456	5	317	3	0.037	0.111
Total			135		85		3,0271
CSI Index		60,54%					
Interpretation		*Very poor*					

Source: Primary Data from Processed Respondents (2020)

Based on Table 5 of the Customer Satisfaction Index (CSI) calculation, the CSI index is 60.54%, and the category is very poor. Yogyakarta citizens still expect numerous improvements to managing congestion and air pollution. The efforts made by the Yogyakarta City Government are still not in line with what most people expect.

The results of this study indicated that a commitment to maintaining environmental quality must also accompany the government's efforts to increase the number of tourism visits. These results supported the research conducted by Kim and Park (2013) and Keith and Boley (2019). Of the five attributes used in the study, it can be mapped that several attributes fall into category III or IV. The mapping showed that the resources allocated by the city government are considered excessive, such as (T3) clarity of traffic sign information, (R2) services provided by public transportation officers, and (RS6) police officers who can manage traffic well.

Toward local residents decrease of quality environment i.e., congestion and air pollution, it will increase stress and dissatisfaction among people residing in crowded tourist destinations (Dickinson & Robbins, 2008). The effect of local residents feeling affected by the pollution will make it less likely that tourists will visit Yogyakarta. Reducing the congestion level as an impact of increasing the number of tourist visits can be overcome by managing transportation management. According to Mondschein and Taylor (2017), transportation options for tourism are also decisive. It includes good transportation options, for example, do not lead to an increase in the number of vehicles in the city.

Meanwhile, in the city of Yogyakarta, it is frequently found that tourist buses join the traffic-congested streets to pick up and drop off passengers at inns or hotels. The conclusion of Keith and Boley (2019) clarified the importance of Sustainable Tourism Initiatives (STI). With STI, all stakeholders have the same vision to develop sustainable tourism.

According to Tjitrohartoko and Saraswati (2020), the implementation of the IPA helped reduce congestion and pollution in Jakarta. The government can identify the causes of congestion and pollution using this standard, which helps make better decisions about addressing the issue. Some scientists do research in Iran and have found some interesting things. Esmailpour et al. (2020), The IPA worked with Exploratory Factor Analysis to identify the critical components of bus service attributes. They then proposed a method for prioritizing attributes and introduced confidence intervals around each one to help interpret the results. Finally, they divided the sample using Cluster Analysis (CA) to account for the heterogeneity of the data.

Based on the result of Beaudoin et al. (2015), it is essential to evaluate public transit investment, considering the effects of transit investment on traffic congestion and air quality. In Thailand, the city government cooperation with Toyota Mobility Foundation and Chulalongkorn University to maintain the traffic and air pollution. They helped people use public transportation more by creating a Park & Ride system and providing a shuttle bus service to local schools. They also helped an information system to help people know

the best routes to minimize commuting time. Finally, they helped companies work flexible hours so that people could still get to work on time, despite the traffic.

Conclusion

The perception of Yogyakarta citizens shows attributes that have a high level of importance in Quadrant I, namely wide and comfortable pedestrian paths, the availability of shady trees, drivers who obey traffic signs, and drivers who drive well. Quadrant II shows good performance, for example, the condition of public transportation facilities, the cleanliness of the city of Yogyakarta, suitable parking arrangements, and pedestrian-compliant services. Meanwhile, from quadrant III, attention is paid to the cyclist lines, bicycle parking, and parking attendant skills. Meanwhile, from quadrant IV, it is identified that public services are adequate. Still, the community does not consider them essential—for example, the clarity of information on traffic signs and services provided by public transportation officers.

The level of satisfaction of the Yogyakarta citizens with the efforts of the Yogyakarta City Government to improve congestion and air pollution was analyzed using the Customer Satisfaction Index (CSI) method. It has an index of 60.54% with the category "very poor." The success of the Yogyakarta City Government's efforts in dealing with congestion and air pollution is not only the government's and related agencies' responsibility. However, it is necessary to have cooperation from the citizens by fostering public understanding and awareness to take part in maintaining order and obeying driving protocols.

There are at least two implications of this study. First, the government reduces traffic congestion by restriction for parking of tourist buses in high-traffic areas. The local citizens are potentially suffering cause of tourism, especially congestion and air pollution. Secondly, the government offers parking areas around the city of Yogyakarta. When tourists enter the city, they can use a shuttle bus to their destinations or hotel.

The limitations of this study are: (1) The number of respondents is relatively limited; (2) We collected data by Google form; and (3) the distribution of respondents is not equal. The following study will more precisely analyze citizens' perceptions when the researcher can increase the number of respondents, collect data by direct interview, and pay attention to the distribution of respondents' representatives.

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Appendix

Dimensions		Attributes
Tangible	T1	Condition of public transportation facilities
	T2	Cleanliness of public transportation facilities
	T3	Clarity of traffic sign information
	T4	Strategically located parking pockets
	T5	The parking lot is good and decent
	T6	A wide and comfortable pedestrian path
	T7	There are shady and shady trees
	T8	The bike path is clearly visible
	T9	Availability of bicycle parking
Reliability	R1	Obedience of public transport drivers in driving
	R2	Services provided by public transportation officers
	R3	Drivers obey traffic signs
	R4	Parking attendants have competency certificates
	R5	Cyclists use their own lane
	R6	Police officers manage traffic well
Responsiveness	RS1	Responsiveness of drivers/public transport officers
	RS2	Responsiveness of police officers to regulate traffic
	RS3	Parking attendant response
	RS4	Responsiveness of the City Government in handling pedestrian complaints
	RS5	Responsiveness of the City Government in handling bicycle lane complaints
Assurance	A1	Friendliness of the driver/public transport officer
	A2	Parking attendants can be trusted
	A3	The rider drives well
	A4	Police officers serve safely and comfortably
Empathy	E1	The driver/public transport officer gives information clarity
	E2	Parking attendants are sincere and sincere in parking
	E3	Justice and legal certainty for police officers
	E4	The city government seeks to open green open parks