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The effect of public transport services on quality of life in Medan city

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Abstract

City citizens need the availability of public transportation to support their daily activities. The purposes of this research are to know the level of public transport services in Medan and how is the expectation on it and how is the effect of public transport services on quality of life in Medan city. Research methods using primary data from surveys of people who use public transport. The analysis technique used was descriptive analysis and simple linear regression. The results shows that the public perception of public transport services with indicators insurance, empathy, reliability, responsiveness, tangible and comfort were are low. The public transport service effect significantly to the quality of life.

Keywords: Public transport; quality of life

1. Introduction

Medan is the center of economic growth in the province of North Sumatra that needs facilities and urban infrastructure to provide convenience in carrying out the activities of citizens. With an area of 26,510 hectares (265,10 km2), Medan city inhabited by 2.19114 million inhabitants in 2014 (CBS, 2015).

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Every day the citizens working to fill the sector employment opportunities and generate income to live better and more comfortable in the city, one of that is transport facilities. The transport system that concerns the whole society is public transport. The development of public transport is expected to make the people easier to travel with good service ((Bohari et al., 2014), the transport system (Bachok et al., 2014), operational quality (Sham et al, 2013) and performance (Amiril et al, 2013).

Public transport services can be measured through indicators of insurance (Ojo et al., 2014), empathy (Pakdil and Feride, 2014; Verma M et al., 2013), reliability (Horsu and Solomon, 2015), responsive (Nutsugbodo, 2013), tangible (Randheer et al., 2011) and comfort (Das et al., 2013; Horsu and Solomon, 2015).

The quality of public transport services also effect the quality of life (Ismail et al., 2012) and provide comfort to reduce stress for the passengers during the journey (Le-Klähn et al., 2014; Dahalan et al., 2015), spatial distribution (Eusuf et al, 2014) and environment (Mohit, 2013). Based on the background above, this study seeks to answer this research question are how people's perceptions and expectations of quality of public transport service and the effect on quality of life in Medan city.

2. Methodology

This research was conducted in Medan, 2015. To answer the problem of research, it needs the data. In this study, the research methods that was used is primary data that was obtained through the survey of public transport users in Medan city as a respondent by using samples, this method also was used by Ona et al (2014). Sample number was 400 respondents drawn at random based on passenger movement zone, passenger as a sample (Miranda et al.,2014). This research uses the questionnaire as a guide for the interview respondents to obtain a perception that can reveal the assessment of quality service (Mikušová & Hrkút, 2014), (Khalid et al., 2014), quality and satisfaction (Noor et al., 2014). Indicators of quality of life as measured by this research was feeling happy in making travel by using public transport. The survey data in the form of qualitative transformed in the form of quantitative data to be processed by the statistical analysis techniques. The analysis technique used in this research is descriptive analysis and simple linear regression. In data processing for simple regression analysis using SPSS software. SPSS processing results are interpreted to answer the problem of research.

3. Result

This analysis was done to see the extent attributes are offered to meet the expectations of respondents. If the perception of interviewees is lower than expected from these attributes, it can be said that the service provided is not enough. Services can also be said to be mediocre when respondents felt the services offered sufficient to meet the expected. It would be better if the performance exceeds that expected by the respondents. To measure this gap will be determined by the difference of the ratio of perception on the ratio of expectations of respondents to the dimensions of Public Transport services in Medan city.

Analysis of the six dimensions of Public Transport services in Medan city that has an attribute/indicator of each dimension, namely:

• Insurance dimensions

Based on analysis of respondents' answers to the insurance dimension attributes, public transport services in Medan city can be calculated the mean scores and gaps in each dimension are:

Table 1. Mean score calculation and dimension insurance gap

| No | Insurance | Mean Score | | Gap | Average | |
		Expectation	Perception		Expectation	Perception
1	The driver courtesy	3.86	2.71	1.16		
2	Security at station / stop	4.16	2.46	1.71		
3	Security in public transport	4.19	2.57	1.63	4.03	2.68
4	The drivers' knowledge	3.89	2.99	0.89		
Total Gap				**5.38**		

Based on the table above can be explained that in the insurance dimensions, expectations average value of 4.03 and perception of 2,68 with a gap of 5.38, with the highest gap in the attribute is the security at the station/bus stop of 1.71 and the lowest is the drivers' knowledge of 0,89. The highest expectation is the security in public transport that is equal to 4.19, and then the expectation of security at stations/stops is equal to 4.16 and the expectations on the knowledge of the driver of 3.89, and the lowest is the driver courtesy that is equal to 3.86.

Public perception in Medan city on the public transport services based on research results of the public transport service insurance dimension is low, while high public expectations, the gap between the expectations and perceptions of 5.38. This huge gap explained that the public transport service in Medan city has not met the needs of the community.

- Empathy dimensions

Based on analysis of respondents' answers to the empathy dimension attributes, public transport services in Medan city can be calculated the mean score (average value) and the gap in each of these dimensions, namely:

Table 2. Mean score calculation and empathy dimension gap

No	Empathy	Mean Score		Gap	Average	
		Expectation	Perception		Expectation	Perception
1	Drivers' concern	3.78	2.89	0.89		
2	Drivers' understanding on passengers' question	3.77	2.99	0.77	3.80	2.96
3	Drivers' help for passengers	3.85	3.00	0.85		
Total Gap				**2.51**		

Source: Survey

Based on the table above can be explained that in the empathy dimensions, expectations average value of 3.80 and perception of 2,96 with a gap of 2.51 with the highest gap in the attribute is the drivers' concern of 0.89 and the lowest is drivers' understanding on passengers' question of 0.77. The highest expectation is drivers' help for passengers of 3.85, and then the driver concern of 3.78, and the lowest is drivers' understanding on passengers' question of 3.77.

Based on the results of research on empathy dimension of public transport services, the lowest perception of 2.89 is the drivers' concern, while the highest is drivers' help for passengers that is equal to 3.00.

In Medan city, public perception on the public transportation service based on the results of research on empathy dimension is low, while the expectation is high, the gap between the expectations and perceptions of 2.51. This huge gap explained that the public transport service in Medan city has not met the needs of the community.

- Reliability dimensions

Based on analysis of respondents' answers to the reliability dimension attributes, public transport services in Medan city can be calculated the mean scores and gaps in each dimension are:

Table 3. Mean score calculation and reliability dimension gap

No	Reliability	Mean Score		Gap	Average	
		Expectation	Perception		Expectation	Perception
1	Waiting time	4.00	2.29	1.71		
2	Travelling time	4.01	2.30	1.71		
3	New information	4.10	2.07	2.03	4.07	1.92
4	Complaints handling system	4.16	1.95	2.22		
Total Gap				**7.67**		

Based on the table above can be explained that in the reliability dimensions, expectations average value of 4.07 and perception of 1.92 with a gap of 7.67 with the highest gap in the attribute is the complaints handling system of

2.22 and the lowest is waiting time of 1.71. The highest expectation is complaints handling system of 4.16, and then the new information of 4.10, and the lowest is waiting time of 4.00.

Based on the results of research on reliability dimension of public transport services, the lowest perception of 1.95 is the complaints handling system, while the highest is traveling time that is equal to 2.30.

In Medan city, public perception on the public transportation service based on the results of research on reliability dimension is low, while the expectation is high, the gap between the expectations and perceptions of 7.67. This huge gap explained that the public transport service in Medan city has not met the needs of the community.

- Responsive dimensions

Based on analysis of respondents' answers to the responsive dimension attributes, public transport services in Medan city can be calculated the mean scores and gaps in each dimension are:

Table 4. Mean score calculation and responsive dimension gap

| No | Responsive | Mean Score | | Gap | Average | |
		Expectation	Perception		Expectation	Perception
1	Drivers' responsiveness	3.78	2.92	0.85		
2	Quick and convenient service	3.98	2.51	1.47		
3	Drivers' willingness in handling passengers' complaints	3.95	2.79	1.16	3.90	2.74
Total Gap				**3.49**		

Based on the table above can be explained that in the responsive dimensions, expectations average value of 3.90 and perception of 2.74 with a gap of 3.49 with the highest gap in the attribute is the quick and right service of 1.47 and the lowest is drivers' responsiveness of 0.85. The highest expectation is quick and convenient service of 3.98, and then the drivers' willingness in handling passengers' complaints of 3.95, and the lowest is the drivers' responsiveness of 3.78.

Based on the results of research on responsiveness dimension of public transport services, the lowest perception of 2.51 is the quick and right service, while the highest is drivers' responsiveness that is equal to 2.92.

In Medan city, public perception on the public transportation service based on the results of research on responsiveness dimension is low, while the expectation is high, the gap between the expectations and perceptions of 3.49. This huge gap explained that the public transport service in Medan city has not met the needs of the community.

- Tangible dimensions

Based on analysis of respondents' answers to the tangible dimension attributes, public transport services in Medan city can be calculated the mean scores and gaps in each dimension are:

Table 5. Mean score calculation and tangible dimension gap

| No | Tangible | Mean Score | | Gap | Average | |
		Expectation	Perception		Expectation	Perception
1	Clarity of information in terminal / stop	4.04	2.20	1.84		
2	Hygiene in public transport	3.97	2.53	1.44		
3	The modern terminal appearance	3.97	2.18	1.78		
4	Terminal cleanliness	4.23	2.02	2.20		
5	Appearances public transport	3.92	2.60	1.32	4.07	2.18
6	The neatness and cleanliness driver	4.15	2.14	2.01		
7	The availability of first aid facilities for accident	4.22	1.60	2.62		
Total Gap				**13.21**		

Based on the table above can be explained that in the tangible dimensions, expectations average value of 4.07 and perception of 13.21 with a gap of 2.18 with the highest gap in the attribute is the availability of first aid facilities for the accident of 2.62 and the lowest is appearances public transport of 1.32. The highest expectation is the terminal cleanliness of 4.23, and then the availability of first aid facilities for the accident of 4.22, and the lowest is the appearances public transport of 3.92.

Based on the results of research on the tangible dimension of public transport services, the lowest perception of 1.60 is the availability of first aid facilities for the accident, while the highest is appearances public transport that is equal to 2.60.

In Medan city, public perception on the public transportation service based on the results of research on tangible dimension is low, while the expectation is high, the gap between the expectations and perceptions of 2.18. This high gap explained that the public transport service in Medan city has not met the needs of the community.

- Comfort dimensions

Based on analysis of respondents' answers to the comfort dimension attributes, public transport services in Medan city can be calculated the mean score and the gap in each of these dimensions, are:

Table 6. Mean score calculation and comfort dimension gap

No	Comfort	Mean Score		Gap	Average	
		Expectation	Perception		Expectation	Perception
1	Seating availability	3.71	3.37	0.34		
2	Comfortable Seating	4.16	2.40	1.76		
3	Driver who orderly traffic	4.27	1.97	2.30	4.11	2.31
4	Public transport using AC	4.30	1.51	2.79		
Total Gap				**7.18**		

Based on the table above can be explained that in the comfort dimensions, expectations average value of 4.11 and perception of 2.31 with a gap of 7.18 with the highest gap in the attribute is public transport using AC of 2.79, and the lowest is seating availability of 0.34. The highest expectation is public transport using AC of 4.30, and then the comfortable seating of 4.16, the driver who orderly traffic of 4.27, and the lowest is the seating availability of 3.71.

Based on the results of research on comfort dimension of public transport services, the lowest perception of 1.51 is public transport using AC, and then the driver who orderly traffic of 1.97, while the highest is seating availability that is equal to 3.37.

In Medan city, public perception on the public transportation service based on the results of research on comfort dimension is low, while the expectation is high, the gap between the expectations and perceptions of 7.18. This high gap explained that the public transport service in Medan city has not met the needs of the community.

The public transport services that had been done by other researches was by using dimensions of insurance (Ojo et al., 2014), empathy (Pakdil dan Feride, 2014; Verma M et al., 2013), reliability (Zakaria et al., 2010; Horsu and Solomon, 2015), responsive (Nutsugbodo, 2013), tangible (Randheer et al., 2011) dan comfort (Das et al., 2013; Horsu dan Solomon, 2015). By using that dimension in this research, it was found that the highest expectations of public transport services is public transport using the AC of 4.30, the driver orderly traffic amounted to 4.27, the cleanliness of the terminal at 4.23, security in public transport at 4.19 and expectations of comfortable seating of 3.71

- The effect of public transport services on quality of life in Medan can be evidenced by the results of the regression analysis as follows:
- The value of the correlation between service quality and quality of life is above 0.5 or approaches a value of 1 is worth 0.757, which means the correlation between the two variables showed a fairly strong correlation.
- Rated R Square or the coefficient of determination (KD) showed 0.572 or 57.2%, which means service quality affects the quality of life 57.2% were using public transport is by 42.8%
- The level of significance or linearity of a regression between service quality and quality of life showed 0.00, which means the relationship between two variables is very significant because <0.05

- Based on the analysis output regression obtained by equation models Qol = 1.120 + 0.708 SQ.

Based on the results of the regression analysis above can be proved that the public transport service with indicators insurance, empathy, reliability, responsive, tangible and comfort effect significantly on the quality of life in Medan city. This method is in line with research conducted by (Ismail et al., 2012), (Le-Klähn et al., 2014; Dahalan et al., 2015). This context explained that the public transport service still cannot provide the happiness of life, public transport users feel uncomfortable to travel in the city. Each trips activities using public transport could increase stress for passengers because when they make the trip with public transport, they do not have the service that they expect. The passengers need better service than what they have. When public transport service is not good, it will be able to decrease temporarily the level of happiness at the end it can reduce the quality of life.

Based on the regression model above can be interpreted in the direction of the effect of regression coefficients indicate a positive value that is if the public service transport improved. It can contribute to improving the quality of life of passengers of public transport in Medan city and otherwise when public transport service is not enough; it will lower the level of quality of life. Therefore, it is important for transport sector development program to make an effort and policies to improve public transport service that can support the quality of life.

4. Conclusion

The results showed that the public perception of public transport services with indicators insurance, empathy, reliability, responsive, tangible and comfortable is very low in giving the good service to the passengers. Otherwise, they expect better service improvement by policy development of Mass Rapid Transit. The public transport service effects significantly on the quality of life in Medan city. Aspects of quality of life as measured by the perception of happiness. This context explained that the public transport service still cannot provide the happiness of life, public transport users feel uncomfortable to travel in the city. Each activity trips using public transport could increase stress for passengers. When public service transport is not good, it will be able to decrease the quality of life. Based on the regression model can be interpreted in the direction of the effect of regression coefficients indicate positive value that if the public transport service improved, it also can contribute the enhance the quality of life in Medan city. Otherwise, when public transport service is not good, it will lower the level of quality of life. Therefore, it is necessary for the transport sector development program to make an effort and policies to improve public transport service that can support the quality of life. From the result of this research, the authors suggest the other research to explore the research that connect with public transportation and quality of life by using other variables and indicators that can be generalised in other country.

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