

Evaluation of Service Quality Dimensions towards Customer's Satisfaction of Ride-Hailing Services in Kuala Lumpur, Malaysia

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Abstract: Ride-hailing services refers to transportation services booking through smart phone apps in collaboration with transportation network companies. In Malaysia, the ride hailing services have been formally legalized since July 2017 under the Commercial Vehicles Licensing Board Act 1987 and Land Public Transport Act 2010. According to Arcadis' 2017 Sustainable Cities Mobility Index, Kuala Lumpur transportation system is ranked at 95th position out of 100 cities around the world. The introduction of ride-hailing services has provide not only an alternative for those who are dependent on public transportation, but it is also expected to ease the problems of congestion in the city of Kuala Lumpur. Focusing on ride-hailing services, this paper aims to analyze customer satisfaction of the services provided by analyzing the five service quality dimensions; tangibility, empathy, reliability, assurance and responsiveness. With the increasing numbers of ride hailing providers such as Grab, Riding Pink, PICKnGO, Dacsee and MULA, it is vital to determine the factors that lead to the customers' satisfaction in order for the companies to be competitive. In this research, the SERVQUAL model is used to identify the gap between the ride hailing providers and the customers' expectations of service quality provided. The overall findings conclude that all the five service dimensions have positive and significant correlations towards customer satisfaction.

Keywords: ride-hailing, customer satisfaction, service quality, public transportation

I. INTRODUCTION

Ride-hailing services refers to transportation booking using smartphone apps in collaboration with transportation network companies (Pham *et al.*, 2017). In today's technology-driven era, the ride-hailing service has grown tremendously (Furuhata *et al.*, 2013) and well accepted by consumers throughout the globe including Malaysia. Ride-hailing service in Malaysia has been legalised since July 2017, and currently there have five ride-hailing services companies operating in Malaysia namely, Grab, Riding Pink, PICKnGO, Dacsee and MULA car (Rao, 2018). Among the service providers, Grab who took over Uber on March 2018 is the largest and most popular ride-hailing service provider in Malaysia till date (Daga and Aravindan, 2018; Grab, 2018).

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The introduction of ride-hailing services has provide not only an alternative for those who are dependent on public transportation (Dhillon, 2017), but it is also expected to ease the problems of congestion in the city of Malaysia. Its availability able to reduce the grievances from passengers toward the services from public transportation service providers particularly issues created by conventional taxis services such as the taxis drivers choosing preferred destination of travel, inefficient, indiscipline, rude drivers, stinky cabs and overcharging (Hamid, 2016; Amirul and David, 2016; Hui, 2017; Khor, 2017; Nair and Leng, 2017). In fact, the ride-hailing service has slowly revolutionised the public transport industry, particularly replacing the conventional taxi industry (Ahmad, 2017; Aziz, 2018). Referring to the growth of ride-hailing services industry and the important role emerged from this service industry, there is a need to further investigate the service quality dimensions and customer's satisfaction on ride-hailing services particularly in Malaysia context. As far as we know, there is little or none publicly available research on the service quality and passengers' satisfaction in ride-hailing services in Malaysia. Therefore the aim of this paper is to investigate the relationship between the service quality and customers' satisfaction toward ride-hailing services in Malaysia. Specifically, this study attempts to evaluate the five service quality dimensions, namely tangibility, reliability, responsiveness, assurance and empathy, towards customer satisfaction on ride-hailing services in Kuala Lumpur, Malaysia. The results of the study will give further insight into the ride-hailing services particularly in filling the research gap by empirical testing on the relationship between the service quality dimensions and customer satisfaction in the ride-hailing services industry in Malaysia. In addition, this study will raise the awareness from the ride-hailing service providers on the importance of service quality in improving the satisfaction level of customer which will led to further customer retention and better business performance.

A. Customer Satisfaction

Customer satisfaction can be defined as a customer's perception of the degree to which customers' requirements have been fulfilled, referring to the differences between expectations and actual performance (Hanif, Hafeez and Riaz, 2010). Customer satisfaction refers to a consumer's comprehensive assessment of performance based on past experience with an organisation (Sanjuq, 2014),



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which is also considered one of the key performance indicators of organisation and their quality system (Ilieska, 2013). In service industry, understanding customer's expectation on the service they experience and providing a customer's preferred service is clearly an important basis for customer satisfaction (Gunderson, Heide and Olsson, 1996; Siew *et al.*, 2011; Amin *et al.*, 2013; Allan, 2016). Overall, in service industries customer satisfaction is crucial as the mean to measure the outcome of service quality (Cameran, Moizer and Pettinicchio, 2009; Ali and Raza, 2015). Therefore, service quality is expected to have certain extend of influences on customer satisfaction.

B. Service Quality

Service quality is a function of the difference between the expectations and perceptions of the service (Parasuraman, Zeithaml and Berry, 1985). It is difficult to define the quality of a service since services are mainly intangible. Thus, service quality is subjective and mainly refers to the customer perceptions of the quality of the services they received. After the customer has taken part in the service process, he or she will evaluate the experienced quality with the expected quality to justify whether he or she is satisfied with the service (Gronroos, 1993; Osama and Sentosa, 2013; Yulisetiari, 2014). SERVQUAL created by Parasuraman and Zethami (1985) has been adapted by most of the researchers in studying service quality from five main dimensions: (1) tangibility refers to the physical environment of an organisation, (2) reliability refers to an organisation's ability to perform the service accurately and dependable, (3) responsiveness refers to an organisation's ability to respond to customer requirement promptly and the employee's willingness to help and serve the consumers, (4) assurance refers to employees' ability to establish trust and instil confidence with the customers based on their knowledge and competence, and (5) empathy refers to the employees' ability to show care and concern for customer problems (Naik, Gantasala and Prabhakar, 2010; Saghier, 2015). These five areas of SEVQUAL are being used in this customer satisfaction survey for ride-hailing services in Malaysia.

C. Relationships between Service Quality and Customer Satisfaction

Past research have showed that the five service quality dimensions (tangibility, reliability, responsiveness, assurance and empathy) have significant positively influence customer satisfaction (Jao-Hong *et al.*, 2010; Alqeed, 2013; Sadiq *et al.*, 2013; Yao *et al.*, 2014; Aliata, Ojera and Mise 2016; Khairani and Hati, 2017). (1) Tangibility involved aspect about the appearance of facility, equipment and staff (Yulisetiari, 2014). Khurshid *et al.* (2012) found that there is a positive relationship between tangibility and customer satisfaction on Pakistan's public transport services where higher level of tangibility leads to the higher level of customer satisfaction. Khuong and Dai (2016) found that services tangibility has significant impact on customer satisfaction on local taxi companies in Vietnam. (2) Reliability dimension

was found significantly affected customer satisfaction in the past research (Siew *et al.*, 2011; Zhengwei, 2012; Saghier and Nathan, 2013; Hassan *et al.*, 2013; Al-Azzam, 2015; Minh *et al.*, 2015; Wahid *et al.*, 2017). Horsu and Yeboah (2015) stated that reliability has a positive and significant effect on customer satisfaction in minicab taxi services in Ghana. Similarly, Khuong and Dai (2016) and Mudenda and Guga (2017) testified that reliability is the significantly related to customer satisfaction of the services from the public transportation company. (3) Responsiveness which referred to the service firm's ability to assists the customer and provide real time service was found positively related to customer satisfaction as well (Siew *et al.*, 2011; Saghier and Nathan, 2013; Hong and Marimuthu, 2014; Al-Azzam, 2015; Minh *et al.*, 2015). (4) Assurance which refers to employees' knowledge, courtesy and ability to convey trust and confidence to customer was shown significantly related to customer satisfaction in public transportation services. Khurshid *et al.* (2012) has proven that there was a positive relationship between assurance and customer satisfaction in the public transport sector in Pakistan where higher assurance leads to higher level of customer satisfaction. Mudenda and Guga (2017) also found that assurance is one of the most significant variables leading to customer satisfaction in the services provided by public transportation company. Lastly, (5) empathy that refers to the attitude of the employees towards the customer through the emotional experience and observed experience was also found significant positively related to customer satisfaction (Hassan *et al.*, 2013; Saghier and Nathan, 2013; Al-Azzam, 2015; Bahadur, Azizr and Zulfiqar, 2018).

Review from past literatures widely discussed on the relationship between service quality dimensions and customer satisfaction in service industry (Siew *et al.*, 2011; Saghier and Nathan, 2013; Yao *et al.*, 2014; Yulisetiari, 2014), but there was limited or none of the academic research focused into ride-hailing services at this time especially in Malaysia. In other word, the effects of the five service quality dimensions have not been empirically tested in the ride-hailing services industry and evidently there exist a research gap in studying the relationship between service quality and customer satisfaction in ride-hailing services industry specifically in Malaysia context. Thus, the following study will filled the gap by further investigating the impact of the five service quality dimensions toward Malaysian' satisfaction particularly in ride-hailing services in Malaysia. Thus, the following hypotheses were developed accordingly:

- H1:** There is a significant correlation between tangibility and customer satisfaction towards ride-hailing services in Malaysia.
- H2:** There is a significant correlation between reliability and customer satisfaction towards ride-hailing services in Malaysia.



- H3:** There is a significant correlation between responsiveness and customer satisfaction towards ride-hailing services in Malaysia.
- H4:** There is a significant correlation between assurance and customer satisfaction towards ride-hailing services in Malaysia.
- H5:** There is a significant correlation between empathy and customer satisfaction towards ride-hailing services in Malaysia.

II. METHODS AND MATERIALS

The research design was a quantitative and explanatory study (Saunders and Thornhill, 2012). The population of this study was the ride-hailing users' age between 18 to 54 as they are the main customers. The random sampling method was used to choose the respondents. The research philosophy for this study is positivism. According to Edirisingha (2012), conducting a research by identifying a specific research topic, generate the hypothesis based on past research and design research framework are structural for positivism. This study was a deductive approach in which the purpose is to test the theory. The research strategy was based on survey and the researcher used cross sectional to collect data. In this research, primary data was collected by using questionnaires. The secondary data were collected through the literature review from the past research. Information was obtained from the reliable academic sources such as Taylor and Francis, Pro Quest, Emerald Insights and Research Gate.

The questionnaire has two sections. The first part of the questionnaire was about the demographic characteristics of the respondent, followed by the items for independent variables and a dependent variable that would be tested in the research. The items measured in the questionnaire was using closed question because it was appropriate for self-administered questionnaires such as multiple choices for demographic characteristics and five-point Likert scale for independent variables and dependent variable. In total, there were 34 items; nine questions for demographic characteristics, five questions for dependent variable and 20 questions for independent variables.

The measurements for "Customer Satisfaction" in the instrumentation were adopted from 'Customer satisfaction and brand switching intention: A study of Mobile Services in Saudi Arabia' by Althonayan *et al* (2015) and modified to suit the present study. The "Service Quality" were measured by measured items for items for Tangibility, Reliability, Responsiveness, Assurance and the SERVQUAL scale' by

Parasuraman, Berry and Zeithaml (1991) and modified to suit the present study. All the Five-point Likert scale was used to measure the items ranging from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

In this study, the link of Google form for the questionnaires were sent through e-mails to respondents. The researcher also distributed the printed questionnaire to the respondents personally. Based on the data from the Department of Statistic Malaysia, the number of population in Kuala Lumpur in the year 2017 was approximately 1.79 million (Department of Statistic Malaysia, Official Portal, 2018). The recommended sample size calculated by using Raosoft Sample Size calculator were 271 (Margin of error = 5%; confident level = 90). Therefore, a total of 150 Google form and 150 printed questionnaires were distributed to the targeted respondents. The SPSS was used for descriptive and inferential statistical analysis such as Pearson Correlation, Linear Regression and Multiple Regression.

III. RESULTS

The results of the surveys on respondents' profile showed that out of 285 respondents, 128 (44.9%) were males and 157 (55.1%) were females. This indicates that the frequent users of ride-hailing are females. In terms of age group, the highest users are those aged between 24 to 38 years old, an aged group that is considered as Generation Y, followed by aged group of 18 – 23 Generation Z. These two groups became the main components of the respondents for this research due to the fact that part of the data collection is conducted in universities and shopping malls. It is also observed that most ride hailing users are students (43.2 %), and followed by those who are employed (37.5%). Thus, generally this shows that ride hailing is very popularly demanded by students who basically used ride hailing services to shuttle them to the campus and shopping. The findings also showed that 114 (40%) out of 285 respondents earned allowance or income below RM1,500 or below per month used ride-hailing service to reach their destinations. The data gathered could be concluded that most of the respondents are students, employed and self-employed.

Further findings indicated that 194 (68.1%) of the respondents own a vehicle but still use ride-hailing services due to mainly convenience 147 (51.6%), traffic congestion 58 (20.4%), difficult to find a parking 47(16.5%) and high parking rates 33(11.6%). The survey also shows that most respondents usually use ride-hailing services during afternoon and when required especially during weekends rather than weekdays.

Frequency Analysis of Service Quality Dimensions

Table 1: Frequency Analysis of Tangibility and Customer Satisfaction

Tangibility	Frequency	Percentage (%)
Drivers' attire is neat	116	40.7
Ride-hailing application provide detail information	125	43.9
The interior of vehicle is clean	144	50.5
Vehicle used not older than seven (7) years	138	48.4

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Tangibility is the first independent variable of this study. The frequency is given in Table 1 above. The entries related in analysing the tangibility dimensions of ride-hailing provider services include drivers' attire, detail information on the passenger's trip, cleanliness of the vehicles and life tenor of the vehicles used. Out of 285 respondents, 116 (40.7%) agreed that ride-hailing drivers' dressed neatly to reflect professionalism of the companies that they represent. The respondents also agreed that ride hailing application provides detail information of the passengers' trip. Apart from that,

most of the respondents agree that the ride-hailing providers keep their transport clean and in good condition and aged not older than seven years. However, according to the Land Public Transport Commission (SPAD) 2017, a set of new regulations involving the aged of vehicles to be used by ride-hailing companies should not be more than five years old from the date of registration. This will be in force once the amendments to the Land Public Transport Act are passed by the Cabinet.

Table 2: Frequency Analysis of Reliability and Customer Satisfaction

Reliability	Frequency	Percentage (%)
Drivers can provide services as promised	138	48.4
Ride-hailing service fare is reliable	152	53.3
Ride-hailing company is reliable	128	44.9
Security aspect for ride-hailing is satisfactory	142	49.8

The second independent variable for this study is service reliability (Table 2). The findings show that 138 (48.4%) of the respondents agreed that the ride-hailing drivers provide reliable services by providing services as promised with

reasonable fare being charged. A total of 142 (49.8%) of the respondents further agreed that security aspect of the ride-hailing in Kuala Lumpur is satisfactory, thus conclude that the ride-hailing companies in Kuala Lumpur is reliable.

Table 3: Frequency Analysis of Responsiveness and customer satisfaction

Responsiveness	Frequency	Percentage (%)
Drivers will know alternative route to reach the destination	118	41.4
Drivers keep the customer informed of any delay or inability to deliver the services	116	40.7
Ride-hailing provide timely and efficient service	132	46.3
Communication with drivers are clear and helpful	127	44.6

Responsiveness third dimension of the service quality of the ride-hailing providers was measured through the ability of the drivers to deliver the services promptly (Table 3). This include the ability of the drivers to look for alternative route to reach the destination in situation when there is traffic congestion and

ability to reach passengers' destination timely. Overall findings indicated that the ride-hailing providers able to meet the passengers expectation by providing timely and efficient services.

Table 4: Frequency Analysis of Assurance and customer satisfaction

Assurance	Frequency	Percentage (%)
Drivers are trustworthy	123	43.2
Drivers arrive on time to pick-up the passenger	118	41.4
Drivers make sure passenger reach destinations on time	126	44.2
Drivers make sure passenger reach destinations safely	139	48.8

Assurance is the fourth independent variable. Further findings of the research indicated that 123 (43.2%) of the respondents agreed that the drivers are trustworthy (Table 4). This is justified by 118 (41.4%) respondents agreed that the drivers

were prompt when time to pick-up the passengers at the desired location and ensure that the passengers reach the destination on time and safely.



Table 5: Frequency Analysis of Empathy and customer satisfaction

Empathy	Frequency	Percentage (%)
Drivers understand customers' needs and wants	123	43.2
Drivers seldom reject booked ride	112	39.3
Ride-hailing services provide 24/7 services	122	42.8
Ride-hailing services will always have the passengers' best interest at heart	132	46.3

Finally, the research also indicated that the ride-hailing drivers have high empathy level justified by 123 (43.2%) of the respondents agreed that the drivers understand customers' needs and wants, drivers seldom reject booked ride and the ride-hailing companies provide 24/7 services and the providers will always have the passengers' best interest at heart (Table 5).

Table 6: Customer Satisfaction

Customer Satisfaction	Frequency	Percentage (%)
I am overall satisfied with ride-hailing services	135	47.4
I am satisfied with the convenience of ride-hailing services	106	37.2
I am satisfied with the payment method	119	41.8
I am satisfied with drivers' attitude	117	41.1
I am satisfied with ride-hailing application	128	44.9

Further analysis of the findings on Customer Satisfaction (Table 6) showed that 135 (47.4%) of the respondents were satisfied with the services provided by the ride-hailing companies because they are convenience, supported with good payment method, drivers' attitude and the ride-hailing application system used by the ride-hailing companies.

Table 7: Summary of Cronbach's Alpha Reliability Test

	No of item	Cronbach's Alpha
Dependent variable		
Customer Satisfaction	5	0.870
Independent variable		
Tangibility	4	0.764
Reliability	4	0.821
Responsiveness	4	0.819
Assurance	4	0.867
Empathy	4	0.783

Cronbach's Alpha Reliability Test (Table 7) was also conducted to assess the reliability or internal consistency of customers' satisfaction against the service quality dimensions; tangibility, reliability, responsiveness, assurance and empathy. Based on the Table 7 above, customer satisfaction scored the highest value among the variables with $\alpha = 0.870$, followed by assurance with $\alpha = 0.867$, reliability with $\alpha = 0.821$, responsiveness with $\alpha = 0.819$, empathy with $\alpha = 0.783$ and tangibility with $\alpha = 0.764$. These show that all the variables are reliable and consistent for further analysis.

Table 8: Summary of Pearson Product-Moment Correlation Coefficients Test

No	Variables	1	2	3	4	5	6
1	Tangibility	1					
2	Reliability	0.673**	1				
3	Responsiveness	0.702**	0.793**	1			
4	Assurance	0.624**	0.735**	0.745**	1		
5	Empathy	0.639**	0.657**	0.678**	0.701**	1	
6	Customer Satisfaction	0.698**	0.657**	0.628**	0.551**	0.580**	1

Note: **, Correlation is significant at the 0.01 level (2-tailed).



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Further testing was conducted to determine the correlation coefficient to measure the strength of the linear relationship between tangibility, reliability, assurance, responsiveness, empathy and customer satisfaction towards ride-hailing services in Kuala Lumpur. Table 8 above summarises the Pearson Product-Moment Correlation Coefficients Test that

shows all the independent variables have positive correlation with the dependent variable. There was a high correlation between tangibility ($r = 0.698$), reliability ($r = 0.657$), responsiveness ($r = 0.628$) with customer satisfaction, meanwhile assurance ($r = 0.551$), empathy ($r = 0.580$) have a moderate correlation with customer satisfaction.

Table 9: Summary of Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.748 ^a	.560	.552	.42992	1.766

Multiple regression is also conducted to determine the overall fit of the model and the contribution of each independent variables to the total variance explained. Model summary as reflected in Table 9 is used to determine how well a regression model fits the data. Based on the regression model above, it shows that the 56% (R Square = 0.560) of the observed variability in total customer satisfaction is explained by the total service quality variables. The result indicates that all the service quality items; tangibility, reliability, responsiveness, assurance and empathy are good predictors of customer satisfaction of the ride-hailing services.

Table 10: Model Summary

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.520	5	13.104	70.896	.000 ^b
	Residual	51.569	279	.185		
	Total	117.089	284			

Based on the finding above, the F statistic for the overall goodness of fit of model is 70.896, which is significant at $\alpha = 0.01$. This reflected that the model is fit to be used for further analysis because the result below shows the p-value is 0.000.

Table 11: ANNOVA

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.587	.179		3.285	.001
	Tangibility	.439	.064	.414	6.905	.000
	Reliability	.293	.075	.282	3.935	.000
	Responsiveness	.069	.072	.072	.957	.339
	Assurance	-.047	.062	-.051	-.754	.452
	Empathy	.115	.060	.117	1.913	.057

R square = 0.560; df = 5; F = 70.896; p = 0.0000

Lastly, overall findings from the above Table 11, shows that tangibility, reliability and empathy are highly correlated with customer satisfaction and this is consistent with other researchers findings such as Akbaba (2006), Khurshid *et al.* (2012), Wieseke, Geigenmuller and Kraus (2012), Al-Azzam (2015), Khuong and Dai (2016) and Mudenda and Guga (2017). Whilst responsiveness and assurance showed a moderate correlation with customer satisfaction. This finding is also coherent with Siew *et al.* (2011), Hassan *et al.* (2013), Saghier and Nathan (2013), Al-Azzam (2015) and Minh *et al.* (2015).

IV. DISCUSSION AND CONCLUSION

In conclusion, based on the above findings, it shows that there is a positive relationship between service quality and customer satisfaction. Thus, in order to be competitive, it is crucial for the ride-hailing companies to maintain high service quality standards to ensure customer satisfaction. Evidence from the findings indicated that tangibility, reliability and empathy significantly affect customer satisfaction, followed by responsiveness and assurance moderately affect customer satisfaction.



The study documented that service quality is the dominant route to customer satisfaction therefore, it is imperative for ride-hailing service providers operating in Malaysia such as Grab, Riding Pink, PICKnGO, Dacsee and MULA car to identify and improve customer services in order to capture a larger market share and successfully developed their brand name and be the top provider in the industry.

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