

Rail Service Quality and Customer Satisfaction in Malaysia

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ABSTRACT

The purpose of the research is to analyze the relationship between rail service quality and customer satisfaction. A total of 356 sets of questionnaires were distributed via email to passengers of rail transport in Malaysia and a total of 258 questionnaires were usable for the analysis. Using Pearson correlation analysis and multiple regression analysis our research found that only four rail service quality dimensions namely reliability, responsiveness, convenience, and connection are significant in predicting customer satisfaction. For future research, it is suggested that researchers use a bigger sample size and qualitative analysis for in-depth analysis.

Keywords: Customer Satisfaction, Public Transport, Rail Service Quality, SERVQUAL

INTRODUCTION

Service quality and customer satisfaction have been widely researched; however, most of the studies have focused on industries like banking (Nyarku et al, 2018) insurance (Zailin et al., 2018), hotel and tourism (Mohamed, 2019; Sandy & Ira, 2017; Zahir & Ilham, 2013) and telecommunication (Mah & Maria, 2019; Kumar, 2017; Joudeh & Dandis, 2018). Studies that have focused on transportation industries, however, give a greater emphasis on aviation industries (Bellizzi et al., 2020), whereas research on public transport has focused more on road transport, especially in countries like China and Europe (Leirop & Geneidy, 2016; Fu et al., 2018; Guirao, Garcia-Pastor, & Lopez-Lambas, 2016) and studies on rail transport have been very limited (Miranda et al., 2018; Thanaraju et al., 2019; Hananto & Ali, 2019; Ibrahim et al., 2020).

Public transport services, such as rail transport, can be considered service operations since they are intangible and cannot be stored (Munusamy et al., 2010) Measuring customer satisfaction based on intangible services can be hard since services are not like products, which can be touched and seen

(Selvanathan et al., 2016). Therefore, services need to be operationalised in order to be gauged. A few researchers have used dimensions, such as customer perceptions and customer complaints, to assess service quality (Munusamy et al., 2010; Selvanathan et al., 2016). Subsequently, this measurement has been supported by other researchers such as (Ray et al., 2004) that have affirmed that the rate of customer complaints correlates with the service-quality measurement using the SERVQUAL model. Miranda et al. (2018) and Thanaraju et al. (2019) have pointed out that studies of rail transport with regards to customer satisfaction and service quality are very limited, and Cavana, Garbett & Lo (2007) have stressed the need to further explore the application of the rail service quality instrument on the railway-transport industry. The instrument included three new dimensions namely comfort, convenience, and connection in addition to the original SERVQUAL which consists of tangibility, empathy, reliability, responsiveness, and assurance.

Talking about the usage of rail transport, even though various train-and-rail services are provided, such as trains and commuters, Light Rapid Transit (LRT), Mass Rapid Transit, and Electric Train Services (ETS), many Malaysians are still reluctant to use the services despite their acknowledgment of such services. According to the 7th Prime Minister of Malaysia, Tun Dr. Mahathir Mohamad, rail transit usage had only reached 30.0 percent of its total capacity (Soon, 2019). This situation might not be surprising as a study by Khalid et al. (2014) had discovered that passengers of rail transport, particularly Keretapi Tanah Melayu Berhad (KTMB), were dissatisfied with their services as 78.0 percent of the passengers had experienced delays in their services.

Observations made by Thanaraju et al. (2019) also found that many railway stations in Malaysia had poor facilities and they were unable to protect passengers. The usage of rail transport in Malaysia has yet to reach a satisfactory level, therefore, this paper has been carried out to examine the relationship between the rail service quality dimensions and customer satisfaction.

LITERATURE REVIEW

Rail Transport

Public transport refers to transport services that are used by the public. It could be categorized as perishable service operations since its services cannot be stored (Guirao et al., 2016; Ollio, Ibeas, & Cecin, 2011). In the meantime, rail transport is defined as the means of transport of freight and people using wheeled vehicles that run on a track or rail (Yusoff et al., 2019). The development of the rail industry in Malaysia has grown rapidly since its first commencement in 1885 in Taiping, Perak, Malaysia. Rail transport has played a major role in the economic and social development of Malaysia. Rail transport consists of heavy rails, such as high-speed surface transport, Mass Rapid Transit (MRT), Light Rapid Transit (LRT), monorails, commuters, and railway lines. Heavy rail is used to cater to intercity passengers, freight transport, and urban public-transport usage, while the LRT is heavily used for urban public transport and as the transport between airport buildings. Both the monorail and Express Rail Link (ERL) which are located in Kuala Lumpur, Malaysia are also used as public transport for transporting passengers (Masirin et al., 2017). Shaaban & Khalil (2013) stated that most consumers that typically use public transport are those who are in the lower-income bracket because of its affordable price, however, in the case of rail transport, some professionals also use it to avoid congestion, especially in the urban city with a higher population (Yusoff et al., 2019). Therefore, in this study, rail transport is defined as any transportation models that use a double track with wheeled vehicles and focus on transporting passengers only.

Customer Satisfaction

Customer satisfaction has always been measured through customers' perceptions and views on quality and services that have been offered by an organisation (Selvanathan et al., 2016; Shaladdin et al., 2018). In public transport or rail transport, customer satisfaction is measured by how those services could attract customers to use them (Fu et al., 2018; Irtema et al., 2018). Many researchers have defined customer satisfaction as individuals' feelings, be there good or bad feelings, when they compare the performance that they have received with their expectations of the offered services (Radhita et al., 2017; Selvanathan et al., 2016; Wantara, 2015; Hassan et al., 2013). Organisations that have been successful in satisfying their customers will regain good economic benefits. This is because companies that give quality services will increase their customer satisfaction and, eventually, have customer retention through word-of-mouth marketing (Mah & Maria, 2019). In the context of this paper, customer satisfaction could be connected to consumers' perceptions when they use the services as a whole. Positive perceptions will satisfy consumers and vice versa. The satisfied consumers will become loyal customers and this would definitely serve as a winning strategy for marketing to potential customers.

Service Quality

Individuals and organisations define quality according to their own classification, characteristics, opinions, expectations, and measurements (Radhita et al., 2017; Selvanathan et al., 2016; Munusamy et al., 2010). Service quality can be delineated as services that are deemed suitable and effective for goals and efficiency from the technical and economic aspects (Mah & Maria, 2019). Meanwhile, service quality is also expressed as a customer assessment of organisational excellence as a whole (Munusamy et al., 2010; Selvanathan et al., 2016; Radhita et al., 2017). As yet, the study of service quality has been heavily dominated by the work of Parasuraman, Zeithmal, and Berry (1988) which is based on the theory of disconfirmation of expectation. They have drawn the service quality concept through five important attributes or elements, which are: i) tangibility; ii) assurance; iii) responsiveness; iv) reliability; and v) empathy. These elements have been translated into an instrument, known as SERVQUAL, which has been modified various times to increase accuracy in data analysis.

However, Cavana et al. (2007), have added three more elements namely comfort, connection, and convenience to the SERVQUAL model because the model is too service-oriented and lacks information about service-offering in the transportation industry. It was also because there was a lack of information about the underlying perception of customers in the traditional measures of quality in the public transportation industry. Extending the SERVQUAL model may better assess the needs of rail transport passengers. The comfort dimension assesses the availability of seats, comfortability of seats and temperature, smoothness of the ride, and traveling time, the connection dimension measures the adequacy of parking facilities, easy accessibility to home and nearest station, frequency of trains, and the suitable time to board on the train, while the last dimension, which is convenience, measures accessibility to travel information, ease of buying tickets and convenient office hours at the terminal.

Service Quality in Rail Transport and Customer Satisfaction

Many studies examined the relationship between service quality and customer satisfaction. Among them are Sharma & Das (2017), who found a strong correlation between tangibles, responsiveness, and empathy with customer satisfaction. While a study by Junardy & Hati (2017) on RAILQUAL elements on inter-city trains in Indonesia, such as platform and in-train services, found punctuality (reliability), employee services, and security (assurance) significantly influenced satisfaction among their respondents. Later, a study for rail transport by Thanaraju et al. (2019) found that RAILQUAL dimensions, namely assurance, empathy, comfort, convenience, connection, and responsiveness, significantly impact customer satisfaction. Their study was supported by Hananto & Ali (2019). Miranda et al. (2018) study has recorded a moderate impact of rail transport services quality on

customer satisfaction. In addition, a study by Wang et al., (2020) has also found that reliability was significantly and positively related to customer satisfaction. Ali et al. (2021) also discovered that four service quality dimensions, namely empathy, responsiveness, assurance, and tangibles, have positive relationships with customer satisfaction.

Another study on the relationship between service quality and customer satisfaction was done by Mah & Maria (2019) on telecommunication companies in Malaysia. Their analysis has revealed that service quality is correlated with customer satisfaction, which is in line with a study done by Shaladdin et al. (2018) that has also found a positive, significant relationship between service quality and customer satisfaction in insurance companies. In the banking sector, a study done by Joudeh & Dandis (2018) has also concluded that there is a significant relationship between services offered and customer satisfaction, and when this occurs, satisfied customers will become loyal customers. This finding is supported by Farooq et al. (2018) in their study on air transport which found that empathy has a significant influence on overall satisfaction. A similar impact of service quality on customer satisfaction has also been found in a study done by Tran & Le (2020) on convenience stores in Vietnam.

However, not all studies have shown a significant positive impact of service quality on customer satisfaction. For instance, a study by Sharma & Das (2017) among online cab services users have found that reliability and assurance are not significant enough in contributing to overall customer satisfaction. A similar finding is also recorded by a later study done by Fu et al. (2018) on 329 respondents on public-transit users in China. The study has found that there is no significant relationship between service quality and customer satisfaction. The study has been supported by a study conducted by Sandy & Ira (2017) that has also found that there is no significant relationship between service quality and customer satisfaction. Their study has been based on 177 hotel users in Indonesia. Among the elements that have a very poor rating are responsiveness and reliability. Ali et al. (2021) in their study on hospitality have also found that reliability has no positive impact on customer satisfaction. This is in line with a study by Sharma & Das (2017) that found reliability and assurance are weakly related to overall satisfaction. While an earlier study conducted by Khandar et al. (2010) discovered that customers value reliability and convenience more than comfort. Therefore, based on a few studies mentioned above, it can be concluded that the variables are connected and, in general, service quality or rail-service quality (RAILQUAL) has a positive significant impact on customer satisfaction.

Based on the literature review this study proposes the following hypothesis:

- H₁: There is a significant relationship between reliability and customer satisfaction.
- H₂: There is a significant relationship between tangible and customer satisfaction.
- H₃: There is a significant relationship between assurance and customer satisfaction.
- H₄: There is a significant relationship between responsiveness and customer satisfaction.
- H₅: There is a significant relationship between empathy and customer satisfaction.
- H₆: There is a significant relationship between comfort and customer satisfaction.
- H₇: There is a significant relationship between connection and customer satisfaction.
- H₈: There is a significant relationship between convenience and customer satisfaction.

RESEARCH METHODOLOGY

This part discusses the method that has been used in this research, the methodology involves techniques used, questionnaire design, and data collection procedure.

Data Collection Method

The questionnaire has three sections. In the first section, respondents are asked about their personal details; in the second section respondents rate the service quality of the rail service and in the third section the respondents report their level of satisfaction toward the rail service provider. The questionnaires on rail service quality used in this study are adapted from instruments developed by Cavana, et. al (2007) while the questionnaires on customer satisfaction were adapted from Bhattacharjee (2001). The rail service quality measures use a seven-point Likert Scale (ranging from one, extremely poor to seven, very excellent) while the customer satisfaction measures use a seven-point Likert Scale (ranging from one, strongly disagree to seven, strongly agree). The respondents were selected from the public using convenience sampling and the questionnaires were distributed to them using google form as the study was being done during the pandemic era. Of the 356 returned questionnaires, only 258 (72.47%) were used for analysis purposes. Data were then analyzed using the SPSS version 23, which includes the Reliability Test, Pearson Correlation Coefficient, and multiple regression analysis.

FINDINGS AND DISCUSSION

The reliability of the questionnaire items was measured using Cronbach's alpha. Based on the result analyzed, it is confirmed that all the items are reliable since all the variables have good internal consistency as they fall under the range of 0.85 to 0.95 which according to Sekaran & Bougie (2016) are considered reliable variables. Based on the descriptive analysis of the demographic profiles of the respondents, it is found that most of the respondents are female, representing 65.1 percent of the sample while the remaining are male. The majority of the respondents are using various types of rail transport which are MRT, LRT, ERL, Monorail, and ETS & commuter. Also, 69.4 percent of the respondents stated that their purpose of using the rail transport is for leisure purposes and only 3.9 percent of respondents use it for business purposes while the remaining is using it for education, visiting relatives, and other purposes such as vacation. 41.9 percent of the respondents used rail transport at least a few times per year followed by 22.1 percent who use it at least once a year. 10.5 percent use it at least once a month followed by 8.5 percent who use it almost every day and 7.0 percent who use it at least once a week. The rest of the respondents chose others in their answers but they did not state how frequently they used rail transport. Table 1 shows that there are positive significant correlations between customers' satisfaction and the service quality dimensions of rail transits which consists of reliability ($r=0.675$), tangible ($r=0.673$), assurance ($r=0.720$), responsiveness ($r=0.739$), empathy ($r=0.677$), comfort ($r=0.642$), connection ($r=0.670$), and convenience ($r=0.703$).

Table 1: Summary of Pearson Correlation Analysis

	S	RL	T	A	RS	E	CM	CN	CV
Satisfaction (S)	1.000								
Reliability (RL)	.675**	1.000							
Tangible (T)	.673**	.658**	1.000						
Assurance (A)	.720**	.668**	.811**	1.000					
Responsiveness (RS)	.739**	.686**	.770**	.882**	1.000				
Empathy (E)	.677**	.599**	.738**	.854**	.900**	1.000			
Comfort (CM)	.642**	.632**	.711**	.796**	.706**	.688**	1.000		
Connection (CN)	.670**	.564**	.660**	.735**	.727**	.708**	.679**	1.000	
Convenience (CV)	.703**	.552**	.705**	.811**	.755**	.736**	.740**	.698**	1.000

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

Table 2 shows that the service quality of the rail transits explains 65.4% of the variance in customer satisfaction ($F = 58.920, P < 0.001$). Of all the service quality dimensions, reliability ($\beta = 0.270$) makes the highest unique contribution to explaining customer satisfaction when the variance explained by all other variables in the model is controlled for. The table also shows that only four service quality dimensions namely reliability, responsiveness, connection, and convenience make unique statistically significant contributions ($P < 0.05$) to the prediction of customer satisfaction with t-values of 4.878, 2.467, 2.660, and 3.838 respectively.

Table 2: Summary of Multiple Regression Analysis

Summary		Anova			Dimensions	Beta	t	Sig.	Collinearity Statistics	
R	R Square	F	Sig.	Tolerance					VIF	
.809 ^a	.654	58.920	<.001 ^b							
				Reliability	.270	4.878	<.001	.454	2.201	
				Tangible	.069	1.021	.308	.302	3.309	
				Assurance	-.035	-.337	.737	.129	7.728	
				Responsiveness	.258	2.467	.014	.127	7.892	
				Empathy	-.037	-.411	.681	.168	5.948	
				Comfort	-.009	-.132	.895	.308	3.244	
				Connection	.159	2.660	.008	.389	2.569	
				Convenience	.262	3.838	<.001	.297	3.367	

a. Dependent Variable: Satisfaction

Therefore, it can be concluded that only hypotheses 1, 4, 7, and 8 are supported (Table 3). There is no multi-collinearity issue in this study since the tolerance value is not less than 0.1 and the VIF value is less than 10 (Pallant, 2016).

Table 3: Overall Findings of the Study

Hypothesis	Description	Sig.	Result (Hypothesis Supported/Not supported)
H1	There is a significant relationship between reliability and customer satisfaction.	$p = < .001$	Supported
H2	There is a significant relationship between tangible and customer satisfaction.	$p = 0.308$	Not supported
H3	There is a significant relationship between assurance and customer satisfaction.	$p = 0.737$	Not supported
H4	There is a significant relationship between responsiveness and customer satisfaction.	$p = .0014$	Supported
H5	There is a significant relationship between empathy and customer satisfaction.	$p = 0.681$	Not supported
H6	There is a significant relationship between comfort and customer satisfaction.	$p = 0.895$	Not supported
H7	There is a significant relationship between connection and customer satisfaction.	$p = 0.008$	Supported
H8	There is a significant relationship between convenience and customer satisfaction.	$p = < .001$	Supported

This research aims to determine the relationship between the independent variables, which are reliability, tangible, assurance, responsiveness, empathy, comfort, connection and convenience, and the dependent variable, which is customer satisfaction. The results generated by this paper explain that reliability, responsiveness, connection and convenience have a significant relationship with customer

satisfaction. A study by Miranda et al. (2018) also found a significant relationship between reliability and connection with customer satisfaction.

There is no significant relationship between tangible, assurance, empathy and comfort with customer satisfaction. The result is supported by a study done by Radhita et al. (2017) and Sandy & Ira (2017) which indicated that there is no relationship between tangible, assurance and empathy with customer satisfaction.

CONCLUSION

This paper aims to identify the relationship between the independent variables, which are rail service quality dimensions namely reliability, tangible, assurance, responsiveness, empathy, comfort, connection and convenience, and the dependent variable, which is customer satisfaction. In our study, only reliability, responsiveness, connection and convenience are significantly related to customer satisfaction whereas comfort, empathy, assurance and tangible are not significantly related to customer satisfaction. Hence, it can be concluded that most of the respondents of the research are not dependent on tangible, assurance, empathy and comfort in determining their satisfaction toward the rail service provider. However, the respondents are dependent on responsiveness, reliability, connection and convenience when they are using rail transport and operators of such services should give greater emphasis on such dimensions. They need to give prompt responses to any inquiries from the customers and ensure reliable services. The rail transport operators should also make the services convenient, and the connection is good for customers. For future studies, researchers should include other possible factors related to customer satisfaction, using a bigger sample size, and their studies may focus on qualitative-research methods for in-depth analysis and ensure that results can be obtained from different perspectives. In addition, future studies may also extend their surveys to other modes of transport apart from rail transport.

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AUTHORS' CONTRIBUTION

Ruzaidah A.R and Hasmida M.N conceived and plan the research with data preparation. Rahayu I.B and Suzila M.S writing for literature in this research while Raslina M.N and Siti F.M.H analyze and contributed to the interpretation of the results. Noor M.A took the lead in writing the manuscript. All authors provided critical feedback and helped shape the research, analysis and manuscript.

CONFLICT OF INTEREST DECLARATION

We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This research/manuscript has not been submitted for publication nor has it been published in whole or in part elsewhere. We testify to the fact that all Authors have contributed significantly to the work, validity and legitimacy of the data and its interpretation for submission to Jurnal Intelek.

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