

# The Effect of Service Quality on Customers' Satisfaction of Inter-District Public Bus Companies in the Central Region of Sarawak, Malaysia

Adler Hilary Laisak<sup>1</sup>, Anita Rosli<sup>2</sup> & Nurzalikha Sa'adi<sup>3</sup>

<sup>1</sup> School of Business and Management, University College of Technology Sarawak, Malaysia

<sup>2</sup> Department Social Science and Management, Faculty of Humanities, Management & Science; <sup>2</sup>Institut Ekosains Borneo, Universiti Putra Malaysia Bintulu Campus, Sarawak, Malaysia

<sup>3</sup> Centre of University Courses and Innovative Learning, University College of Technology Sarawak, Malaysia

Correspondence: Anita Rosli, Department of Social Science and Management, Faculty of Humanities, Management & Science; Institut Ekosains Borneo, Universiti Putra Malaysia Bintulu Campus, Sarawak, Malaysia. E-mail: anitarosli@upm.edu.my

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## Abstract

Service quality is a vital factor that influences customer satisfaction. For profit organizations such as public bus companies, high customer satisfaction is a sign for business success and the ability to create long-term relationships with their customers. This research is to assess the effects of service quality attributes on customers' satisfaction towards service quality provided by inter-district public bus companies in the Central Region of Sarawak. The research adapted SERVQUAL model proposed by Parasuraman, Zeithaml and Berry (1988). A total of 400 respondents were obtained among inter-district public bus users through a convenient sampling method. The mean score for customers' satisfaction was 2.24, which means the level of customer satisfaction towards the service quality of inter-district buses in the Central Region was low. Meanwhile, the result from the multiple regression analysis showed that service quality dimensions of empathy, assurance, and responsibility had significant effects on customers' satisfaction. The inter-district public bus companies in the Central Region of Sarawak should improve their service quality by building and obtaining customer trust to keep existing customers and at the same time to attract potential customers. Good customers' experience towards service and the power of word mouth are marketing tools to enhance business reputation relative to other competitors.

**Keywords:** SERVQUAL, customer satisfaction, inter-district public bus, central region of Sarawak

## 1. Introduction

In general, public transport plays a vital role to enable people to move from one place to another place especially for those who do not have their own. Public transportation connecting people to other different places. There are different types of public transport provided to the people in each country, depending on their geographical area whether it is by air, land, and water. Public transportation exists in all modes of transports such as train, car, rail transport, bus, rapid transit, airplane, trolley, taxi, ferry, auto-rickshaw, monorail, and others. Public transport is typically managed on a schedule operated on an established route and charged for each trip. Most of the countries in the world enjoy their public transports that are provided by the authorities or local government and even by private companies. Meanwhile, the growth of the population can help towards the development of public transportation and at the same time, increase the usage of public transportation (Jou & Chen, 2014). As the number of populations increase, the demand for efficient and convenient public transportation is needed and kept increasing to support daily activity.

In Malaysia, there are few modes of public transports available such as bus, taxi, Light Rail Transit (LRT), monorail, Express Rail Link (ERL), commuter rail, ferry, and airplane. However, not all modes of public transports are available in all places around Malaysia because it depends on geography factors, the function of the area (main cities or districts), and the number of populations in that area. For example, in Klang Valley areas (Kuala Lumpur and Selangor), there are many modes of public transport available such as LRT, ERL, commuter rail, bus, Bus Rapid Transit (BRT), Mass Rapid Transit (MRT), and taxi to cater the demand of the people on these

areas. Kuala Lumpur is the national capital and the largest city in Malaysia with a 1.77 million population and Selangor encircles the capital, Kuala Lumpur with a 6.55 million population in 2019 (Department of Statistic Malaysia, 2020). As the city developed, the number of transportations on the road has increased. Thus, public transportation has been chosen to reduce traffic congestion. Besides, the government has introduced the Public Transport Roadmap under the Government Transformation Programme which indicates that reliability and travel time, comfort and convenience, accessibility, interconnections, availability, and capacity are the key indicators for users to indicate their level of satisfaction (Noor et al., 2014).

There are some of the areas in Malaysia that are still not connected through road because of the scattered settlement patterns, especially in a rural area where people need to use river transportations (longboat, ferry) due to no or less proper roads connectivity to that areas. In Sarawak, only a few modes of public transport are available such as bus, taxi, limousine, airplane, and ferry due to geographic and topography factors such as undulating hills and land conditions (soft soil and peatland). Those factors are the main constraints on the building of high technology public transports as what we have seen in Peninsular Malaysia. Public bus is one of land public transport choices for the local community and to connect people within the state. Public bus services in Sarawak are provided by private companies (bus entrepreneurs) under The Sarawak Bus Transport Companies Association. In town and local areas, the public bus companies also need to compete with other public transportation providers such as taxi, rent car, E-hailing services, and unregistered public transport or illegal transport (“kereta sapu” or “van sapu”) as well. In town areas, the usage of e-hailing services (Grab, Maxim, MyCar, JomRide) and unregistered public transport are common as these public transports are convenient and flexible. The passenger easy to bring their belongings (capacity), flexi-time and can pick up everywhere. In the meanwhile, public bus typically managed on a schedule, operated on an established route, limit space, have specific waiting place (bus stop and bus terminal), and not frequent and timely.

For inter-district movement, public bus is a main land transportation choice as it is cheaper compared to an airplane. Even though less competition with other types of public transports like we have seen in town areas, there is competition among public bus companies to get customers. Relative service quality among competitors and evaluative process among customers’ perception will affect their business performance. As the public bus is important for the inter-district movement in Sarawak, service quality is a vital element to be considered by public bus companies to ensure customers are satisfied with their services and to attract more customers using their bus services. Customers or passengers will choose a public bus company that able to fulfil their needs, provide high service quality and give high satisfaction to them. High-quality public bus transport not only keep the customer to continue using public bus transport to fulfil their travel demand but also attract potential customer (Rabiul, Mohammed, Mohammed, & Salauddin, 2014). In the meanwhile, for a profit-oriented organization like public bus companies, good service quality, and higher customer satisfaction will help the organization to build a long-term profitable relationship.

There is less study measuring the service quality of public buses in Sarawak. Previously, Thian (2012) had conducted a study about the service quality of public buses in Kuching areas, the capital city of Sarawak. This study aims to measure customer perception on service quality of inter-district public bus in the Central Region of Sarawak, whereas service quality dimension in SERVQUAL as factors influencing customer satisfaction. This study allows public bus users to express their perceptions and feeling regarding the service quality of public bus transportation in Sarawak. The results from this study will provide information and ideas to public bus transport providers, government, and relevant agencies on how well service delivered to customers, highlight any weakness in service delivery, and where the improvement could be made. In terms of knowledge and literature, the study contributes the use of SERVQUAL model in public transport industry studies for developing countries that have similar environmental and situational factors like the Sarawak state.

## 2. Objectives of the Study

The general objective of this study is to investigate the effects of service quality dimension in SERVQUAL model on customers’ satisfaction towards service quality of inter-district public bus companies in the Central Region of Sarawak. The main research objective was divided into two sub-objectives as follows:

- a) To identify the level of customer satisfaction towards service quality provided by inter-district public bus companies,
- b) To determine which dimension in the SERVQUAL model has significant effects on customer satisfaction towards service quality provided by inter-district public bus companies.

### 3. Literature Review

#### 3.1 Service Quality

Service quality could be measured on goods and services. Service quality is measured by how well the process of services delivered and the overall services perceived based on customers' experience. Service quality should be measured from the customers' perspective (Perez et al., 2007; Bakti & Sumaedi, 2005; Govender, 2016; Ratanavaraha et al., 2016). Besides, customers' perception towards service quality also influencing by word of mouth and based on their experience and their perceptions could be either negative or positive. Quality perceptions often depend on a repeated comparison of the customers' expectation about a particular service, therefore, if a service repeatedly fails to live up to the customers' expectations it will be perceived as poor service or vice versa (Korale, Mandari, & Suh, 2015). Thus, service performance should match the level of performance that customers expect should be provided by the seller or service provider. Parasuraman et al. (1985) suggested three themes in service quality, i.e., evaluating goods quality is easier than service quality, assessment of comparison between customer expectations with actual service performance, and evaluation on the process of the service delivery than the outcome of the service. Meanwhile, according to Gronroos (1990), there were three dimensions of service quality i.e., technical (output received by the customer), functional (the process of services delivered), and corporate image. The technical dimension is output-related and deals with what is received by the customer, while the functional quality is process-related and reflects how the service is provided, and the image dimension relates to how the customer perceives the service provider.

Service quality is a subjective view of customers based on their intangible feelings. It is difficult to assess service quality as service quality involved intangible factors such as feeling and satisfaction where it is based on individual preferences. According to Pen, Silva, Tronchin and Melleiro (2013), service is intangible, and it is being judged by the performance and experience of customers. Meanwhile, different sector or subject of study has different service quality attributes. For instance, there are different service quality attributes and service quality preferences for various service sectors such as health care, banking, transportation and logistics, education, appliance repair, and maintenance, etc. For instance, Famiyeh, Asante-Darko and Kwarteng had used social factors (empathy), reliability, assurance, responsiveness, ambiance (tangibles) and organizational culture to measure the service quality and customer satisfaction in the banking sector where the service quality attributes were grouped into dimension. Meanwhile, some of the studies used straightforward criteria to be measured such as Abbasi-Moghaddam et al. (2019) had used accessibility, waiting time, admission process, physical environment physician's consultation information provision to patient service costs appointment to conduct service quality study in the healthcare sector. Thus, distinction views on service quality attributes are based on the nature of the sector itself. The detailed service quality attributes for the transportation industry will be explained in the next section (3.3).

#### 3.2 Customer Satisfaction

Customer satisfaction is about overall feelings towards products and services. There are several definitions of customer satisfaction. According to Oliver (1980), the customer-satisfaction research literature is concerned with how well the service delivery occurs in comparison with expected. Zeithaml and Bitner (2000) view customer satisfaction as the "customers' evaluation of a product or service in terms of whether that product or service has met their needs and expectations". Customer satisfaction is how you balance the consumer expectation with the perceptions of the service provided (Yao et al., 2014). In conclusion, customer satisfaction is achieved when the products or services received matches with their expectation.

Customer satisfaction is one of the keys to a successful business. It is important to measure the perspective of the consumer using the service. There are three components of customer satisfaction i.e., Service quality, corporate image, and customer perceived value (Channoi, 2014). Profit organizations like public bus companies, fulfil customers' needs, and meet customers' expectations is a sign of high customer satisfaction. As service quality increases and customers tend to reuse the service in the future. Moreover, customer satisfaction towards services quality provided is important to maintain the number of loyal customers. Many researchers also agreed that customer satisfaction has a big impact on service due to its direct relation to customer retention (Imam, 2014).

#### 3.3 Service Quality Attributes and Customer Satisfaction of Public Bus Transportation

For public bus transportation, there are numerous service quality attributes adopted to study service quality, customer satisfaction, and customer loyalty. The SERVQUAL model was introduced by Parasuraman, Zeithaml, and Berry (1988) is a common model adopted by numerous researchers. Cheng, Lai, Chen and Ou (2010), Mohd

and Thian (2012), Nor (2013), Liu, Fadilah, Mohd and Muhammad (2014), Ojo, Mireku and Dauda (2014), Elma (2015), and Ok and Hengsaddeekul (2018) used SERVQUAL to measure service quality and customer satisfaction of public bus transportation. Elma (2015) had conducted her study at Melaka while Liu, Fadilah, Mohd and Muhammad (2014) who conducted their study in Selangor and Kuala Lumpur, found all the five main dimensions of service quality i.e., tangibility, reliability, responsiveness, assurance, and empathy has significant effects on customer satisfaction. Thus, it is proved that all service quality dimensions in the SERVQUAL can measure service quality and customer satisfaction as all the dimensions showed a significant relationship with customer satisfaction. However, in some studies, only certain dimension has a significant relationship with customer satisfaction because it is based on customer preference towards service quality attributes. Nor (2013) found tangibility, reliability, responsiveness, and assurance have significant effects on customer satisfaction towards service quality of express buses service in Kuantan, Pahang (Malaysia). For the service quality study of bus transit in Scotland, reliability, assurance, and tangibility were significant factors influencing customer satisfaction (Morton, Caulfield, & Anable, 2016). Zaherawati, Zaliha, Mohamed Zuriawati (2010), Thian (2012), and Cheng, Lai, Chen and Ou (2010) found only the tangibility dimension was the significant dimension that had effects on customer satisfaction. Even though the results of the studies are varying, the adoption of the SERVQUAL model to conduct service quality and customer satisfaction studies able to highlight important service quality attributes as the dimensions showed significant effects on customer satisfaction.

However, there are other service quality attributes used by several researchers to measure service quality of public bus transportation such as comfort, safety, security seat, travel time (timeliness), accessibility, affordability, the extent of service, transit service, bus fare, bus stop facilities, adequacy of capacity, convenience, suitability, the information provided, cabin environment, bus characteristics, availability, ease of use, and economy (refer Table 1). The authors used these factors as they intended to focus on specific attributes of service quality. The use and choice of service quality attributes among researchers are subjective to the subject and objectives of the study. However, based on the previous studies SERVQUAL model is the most suitable model to measure the service quality of inter-district public buses in the Central Region of Sarawak as the model provides comprehensive service quality dimensions.

Table 1. Overview studies of service quality on public bus transportation

Authors (Year); Location	Service Quality Attributes
Zaherawati, Zaliha, Zuriawati (2010); Lembah Bujang, Kedah (Malaysia)	SERVQUAL - tangibility, reliability, responsiveness
Thian (2012): Kuching, Sarawak (Malaysia)	SERVQUAL
Nor (2013): Kuantan, Pahang (Malaysia)	(tangibility, reliability, responsiveness, assurance, and empathy)
Ok & Hengsaddeekul, (2018): Cambodia	
Cheng, Lai, Chen, & Ou (2010); Taiwan	
Elma (2015); Melaka (Malaysia)	
Liu, Fadilah, Mohd, & Muhammad (2014); Kuantan, Pahang (Malaysia)	
Ojo, Mireku & Dauda (2014); Ghana	
Mudenda & Guga (2017)	
Eboli and Mazzulla (2007); Cosenza (Italy)	Service planning and reliability, comfort and other service and network design
Friman & Felleson (2009); European cities	Frequency, seat and travel time
Vilakazi & Govender (2012); South Africa	Extent of service; comfort; safety; and affordability
Luke & Heyns (2017); Johannesburg (South Africa)	Reliability, Comfort, Safety, Extent of service, Affordability,
Anil, Shamsuddin & Sitti (2015); Johor Bahru (Malaysia)	Reliability, transit service and facilities, bus fare, bus characteristics, conduct, information and suitability
Rabiul et al. (2014); Sintok, Kedah (Malaysia)	Services, access, availability, time, and environment
Harifah, Na'asah & Foo (2014); Kota Kinabalu, Sabah (Malaysia)	Comfort, accessibility and safety
Nwachukwu (2014); Abuja (Nigeria)	Comfort, accessibility to public bus transport services, bus stop facilities, adequacy of capacity
Wu et al (2016); Nanjing (China)	Safety, comfort, convenience, reliability, fare
Morton, Caulfield & Anable (2016); (Scotland)	Convenience, Cabin environment, ease of use
Weng et al. (2018); Beijing (China)	Timeliness, security, convenience, comfort, reliability, economy

#### 4. Conceptual Framework: SERVQUAL and Customer Satisfaction

SERVQUAL model is a service quality model that measures factors of service quality towards goods or services that could influence customer satisfaction level. SERVQUAL was introduced by Parasuraman et al. (1988). According to the SERVQUAL model, customer satisfaction is determined by five service quality dimensions of tangibility, reliability, responsiveness, assurance, and empathy. Figure 1 shows the conceptual framework of this study:

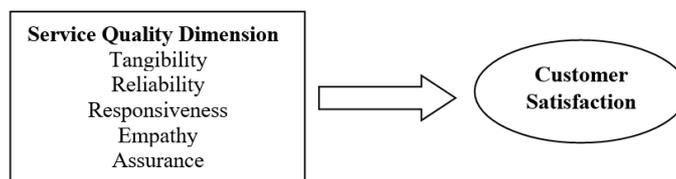


Figure 1. Conceptual framework of study

Source: Author, 2021.

The descriptions the five dimensions of SERVQUAL model according to Parasuraman, Zeithaml and Berry (Pena, Silva, Tronchin, & Melleiro, 2013):

- i. Tangibility refers to the “physical facilities, equipment, personnel and materials that perceived by customer”.
- ii. Reliability is defined as the “comply with what was promised to customer such execute the service in a safe and efficient manner, consistent performance, and free of non-compliance”.
- iii. Responsiveness is defined as the “availability to assist customers with attentive manner, precision information, and prompt response”.
- iv. Assurance refers to “the knowledge and courtesy of employees and their ability to inspire trust and confidence”.
- v. Empathy refers to “accessibility, sensitivity and effort in understanding customer needs”.

Based on the literature and definition provided, the attributes of the five dimensions employed for this study as follows:

Table 2. Attributes of five dimensions in SERVQUAL

Dimension	Attributes
Tangibility	Comfortable of bus station and facilities, staff’s attire is neat and smart, cleanliness inside the bus and waiting place, ample legroom, and foot space for the seat
Reliability	Accuracy of ticketing and billing, departure and arrival time, safe and security service, bus never break down on the road
Responsiveness	Efficient service, willing to help customer, effective communication, ready to serve customer, prompt response
Assurance	Safety, courtesy, trusts and confidence, knowledgeable and good driving skills, friendly and polite
Empathy	Bus fares, specific needs, numbers of bus, first aid box provided, special care (women, old aged, children, and handicap people)

#### 5. Methodology

A quantitative study was used to conduct this research. The quantitative research method is the best method when the study intends to test and check theories, concepts, and ideas on the real situation. This is a case study that applied the SERVQUAL model to measure the service quality of inter-district public buses in the Central Region of Sarawak. Data collected can be analyzed numerically, whereby the result can be presented by statistics, tables, or graphs. Thus, the quantitative method provides straightforward results and could avoid error and subjectivity.

##### 5.1 Location of the Study

Most Sarawak which located on the island of Borneo is one of the largest State in Malaysia (Hakim et al., 2018). Physically, the size of land area in Sarawak approximately 124,449.51 square kilometres which almost equally the

whole of Peninsula Malaysia, 131,573 square kilometres (Furuoka, 2014). Sarawak was divided into twelve divisions which are Kuching, Sibiu, Miri, Bintulu, Mukah, Sri Aman, Limbang, Sarikei, Kapit, Betong, Serian and Kota Samarahan. Presently, most of the major town and cities in Sarawak is connected through Trans-Borneo Highway. Approximately 30,000km of road in Sarawak was constructed by the State Government where the main road route is through Trans-Borneo Highway (Hakim et al., 2018). On the record, Sarawak has more than 40 ethnic groups with each of them own their distinct language, traditions, customs, culture and lifestyle (Colchester, Pang, Chuo, & Jalong, 2009). Based on the statistic reported by Department of Statistics Malaysia (2019), 2.806 million people in Sarawak were categorized into four ethnics i.e., *Bumiputeras* (Note 1) (75.5%), Chinese (23.7%), Indian (0.3%) and other (0.3%). The study was conducted in the Central Region of Sarawak i.e., Sarikei, Sibiu, Selangau, Mukah, Oya, Dalat (in between Matu and Mukah), and Kanowit (refer Figure 2). Sarikei, Sibiu, Selangau are the middle areas or middle routes connecting the Northern and Southern areas of Sarawak. The total population of the study areas is 484.9 thousand (Department of Statistic, 2020). The ethnic population in Central Region of Sarawak was predominantly of Malay, Iban, Melanau and Chinese (Ting & Rose, 2014).



Figure 2. Map of Sarawak

Source: Asia Pacific Mapping Service, 2019.

## 5.2 Data Collection

Convenience sampling method, which is one of the non-probability sampling methods was used to select the sample. According to Sekaran and Bougie (2013), convenience sampling refers to the “collection of information from members of the population who are conveniently available to provide it.” This method was applied in this research because total number of public bus user in Sarawak is not available. Researcher simply select any public bus users for inter-district movement as sample or respondents for this research. Thus, not every public bus user has an equal probability to become a respondent and only the most easily accessible respondents were chosen. By using this sampling technique, the research can be conducted in a timely, convenient, and economically manner.

The closed-ended questionnaire was used as it benefits both respondents and the researcher in term of timesaving and convenience. The questionnaire was divided into two parts, Section A and Section B. Section A is about respondent’s profile and travelling information while Section B is related to the construct measurement of the research. The five dimensions of service quality namely tangibility, reliability, assurance, responsiveness, and empathy were measured. There are five Likert-scale to measure the perception (satisfaction) of respondents towards perceived service quality; strongly not satisfied (1), not satisfied (2), neither satisfied nor dissatisfied (3), satisfied (4), and strongly satisfied (5).

The data collected from June 2018 to December 2018. The questionnaires distributed among passenger at the waiting area in bus terminal, bus stop and to those who had the experience travelling by bus in Central Region areas. Enumerators asked passenger permission whether they are willing to involve in the survey or not, especially passengers at the waiting area in the bus terminal and bus stop because they have limited time to answer the questionnaire. As the number population in the study areas quite large (484.9 thousand), researcher determine

number of sample size based on table of sample size for a given population size by Krejcie and Morgan (1970). According to Krejcie and Morgan (1970), for every 1,000,000 population, 384 sample needed if all the factors are considered to ensure a good decision model, meanwhile Roescoe (1975) proposed the “rules of thumb for determining the sample size, by which the sample size must be greater than 30 and less than 500 for it to be suitable for most research” (Sekaran & Bougie, 2016). Out of 425 questionnaires distributed, 419 questionnaires were returned but only 400 questionnaires were valid for analysis purposes after the process of data cleaning as some of the questionnaires were not completed by the respondents. Thus, the total 400 respondents are sufficient for this study. In addition, not all the population are inter-district public bus users.

### 5.3 Data Analysis

The study is to access the effects of SERVQUAL dimensions introduced by Parasuraman, Zeithaml and Berry (1988). There are five dimensions of SERVQUAL used to measure customer satisfaction towards service quality of inter-district public bus in the Central Region of Sarawak. The total number of respondent (400 respondents) in this study is a reasonable size for analysis because the SERVQUAL measurement usually requires over than 200 samples (Cheng et al., 2010). The data was analysed using the Statistical Package for Social Sciences (SPSS) version 23. This study used descriptive analysis and multiple regressions to achieve objectives of the study. Descriptive analysis was used to describe and summarise the features of the collected information. Multiple regression analysis was employed to find out the significant factors that influence the dependent variable. The relationship of SERVQUAL dimension towards customer satisfaction is significant when the independent variables influence the dependent variable greatly. For reliability test, the Cronbach’s Coefficient Alpha provides the researcher “a reliability coefficient that reveals how well the items in a set are positively correlated to one another” (Sekaran & Bougie, 2013).

The multiple regression equations are formed as follows:

Customer satisfaction ( $Y$ ) =  $\beta_0$  +  $\beta_1$  tangibility +  $\beta_2$  reliability +  $\beta_3$  responsiveness +  $\beta_4$  empathy +  $\beta_5$  assurance

## 6. Findings and Discussion

### 6.1 Respondents’ Profile and Travelling Information

The summary of respondents’ profiles and traveling information are presented in Tables 3 and 4, respectively. Sarikei, Sibuluan, and Selangau represented 20% of the total respondents, respectively. It is followed by Kanowit (14.0%), Mukah (13.2%), Dalat (6.7%), and Oya (6.7%). Based on the respondents’ profile, many of inter-district public bus users are below than 30 years old (62.8%), private-sector workers (30%), students (26.5%), government servants (29.5%), and the individual who has income RM2000 and below (79.1%). Inter-district public bus caters for the lower-income group (B40). However, some respondents who have a high income, high education also choose to use a bus for traveling. The inter-district public bus is used by various people, regardless of income level and type of occupation as it is cheaper compared to an airplane.

Table 3. Respondents' profile

Profile		No. of respondents	Percentage (%)
Areas	Sarikei	81	20.2
	Sibu	80	20.0
	Selangau	80	20.0
	Oya	27	6.7
	Mukah	53	13.2
	Dalat	27	6.7
	Kanowit	52	14.0
Gender	Male	216	54.0
	Female	184	46.0
Marital Status	Single	230	57.5
	Married	131	32.8
	Others (Widow)	39	9.8
Age Category (Years Old)	Below 20	93	23.3
	21 to 30	158	39.5
	31-40	77	19.3
	41-50	57	14.2
	51-60	10	2.5
	61 and above	5	1.3
Race	Malay	122	30.5
	Melanau	95	23.8
	Iban	103	25.7
	Chinese	53	13.3
	Other	27	6.7
Occupation	Student	106	26.5
	Business	21	5.3
	Government Servant	82	20.5
	Private Sector	120	30
	Self Employed	56	14
	Retiree	15	3.8
Income per month (RM)	No income source	118	29.5
	Below RM1500	119	29.8
	RM1501–RM2000	79	19.8
	RM2001–RM3000	61	15.3
	RM3001–RM4000	12	3
	RM4001–RM5000	8	2
	RM5001 and above	3	0.8
Educational Level	Primary School	75	18.8
	Secondary School	202	50.5
	Diploma	66	16.5
	Bachelor's degree	28	7.0
	Master's degree	20	5.0
	PhD	9	2.3

Eight bus companies are operating in Central Region areas, i.e., Bintang Jaya, Borneo Amalgamated, Bus Asia, Coastal Borneo, Eva, Freesia Express, Lanang Road Bus Company, and Transborneo Resources (refer Table 4). About 32% of respondents involved in this research used Lanang Road Bus, 31.8% respondents used Bus Asia, 13.8% respondents used Bus Eva, 11.8% respondents used Freesia Express, 8.3% respondents used Borneo Amalgamated bus, and 1% respondents used Bintang Jaya and Coastal Borneo, respectively. Almost half of the respondents (47%) used buses to other districts at least once a year while 15.3% and 13.5% of the respondents used buses to other districts four times a year and more than five times a year, respectively. Usually, the respondents used the bus for visiting relatives and friends (25.8%) and to education institutions (students) (27%). As the inter-district public bus is purposely for traveling within Sarawak, the frequency of traveling by this type of public bus is low compared to transit buses (Note 2). Even though almost half of the respondents used inter-district public bus once a year, their experience and opinions towards inter-district public bus services are important to give us ideas how well service deliver to customers.

Table 4. Travelling information

Travelling Information	No. of respondents	Percentage (%)
Number of respondents represent bus company:		
Bintang Jaya	4	1
Borneo Amalgamated	33	8.3
Bus Asia	127	31.8
Coastal Borneo	4	1
Eva	55	13.8
Freesia Express	47	11.8
Lanang Road Bus Company	128	32
Transborneo	2	0.5
Frequency using public bus a year:		
Once	188	47
Twice	51	12.8
Three times	46	11.5
Four times	61	15.3
More than 5 times	54	13.5
Purpose of using public bus to other districts:		
Visiting friends and relatives	103	25.8
Education Institution (Students)	108	27
Business trip	33	8.3
Leisure	77	19.3
Others	79	19.8

### 6.2 Reliability Test

By referring to Table 5, the analysis of results showed that the overall dependent variable and independent variables measured have a high alpha coefficient of 0.934. The attributes yielded a Cronbach's alpha from 0.732 to 0.934. Cronbach  $\alpha$  between 0.70 and 0.98 denotes high reliability (Wortzel, 1979). This indicates high internal reliability for the individual constructs.

Table 5. Reliability test

Variables	N of items	$\alpha$	Internal Consistency
Tangibility	5	0.773	Acceptable
Reliability	4	0.723	Acceptable
Responsiveness	5	0.762	Acceptable
Assurance	5	0.796	Acceptable
Empathy	5	0.813	Good
Customer satisfaction	5	0.848	Good
Overall	29	0.934	Excellent

### 6.3 Overall Customers' Satisfaction with Services Quality

The first objective is to identify the level of customers' satisfaction towards service quality provided by inter-district bus companies in the Central Region of Sarawak. The average mean for five dimensions of service quality is from 2.12 to 2.22 with overall customer satisfaction is 2.24 (refer to Tables 6 and 7). The findings showed that the respondents were customer satisfaction towards the service quality of inter-district public bus in the Central Region is low. The findings of the study are like the findings of the studies by previous authors that showed that the level of customers' satisfaction towards service quality of bus transportation is low (Zakaria et al., 2010; Nor, 2013; Dahalan et al., 2015; Rohana & Che, 2012; Rozmi et al., 2012; Ok & Hengsaddeekul, 2018). As all the five SERVQUAL dimensions showed low mean score (2.22 and below), the service quality provided by the bus companies fail to fulfil customers' need and does not meet customers' expectations. There are authors also found all the five SERVQUAL dimensions showed low mean score in their studies. Ok and Hengsaddeekul (2018) found that passengers from Phnom Penh to Poipet in Cambodia have not satisfied with the service quality provided by the private bus companies as the mean score of satisfaction for all the five SERVQUAL dimensions were low (1.98 to 2.26). Ojo, Mireku and Dauda (2014) used the five SERVQUAL dimensions to measure customer's perception towards public transport on Cape Coast-Accra Route, Ghana found the mean score for the five SERVQUAL dimension were from 1.99 to 2.20. As the five dimensions show low mean score, public

transport companies should improve all the service quality dimensions to meet customers' needs and to increase customer satisfaction. For the case of Central Region areas in Sarawak, even no competition with other types of public transport like what happens in town areas taxi, rental car, E-hailing services) bus companies need to compete among themselves to get customers. The good customers' experience towards service and power of word mouth will be able to maintain their regular customers and attract new customers.

Table 6. Average mean for five dimensions of SERVQUAL and customer satisfaction

Variables	N	Min	Max	Average Mean
Tangibility	400	1	5	2.12
Reliability	400	1	5	2.18
Responsiveness	400	1	5	2.16
Assurance	400	1	5	2.12
Empathy	400	1	5	2.22
Customer Satisfaction	400	1	5	2.24

Note. \*1 for 'strongly not satisfied' to 5 'strongly satisfied'.

Table 7. Customers' satisfaction

Number of Questions/Variables	Score of Satisfaction					Mean
	1	2	3	4	5	
a) I am satisfied with the services provided by the bus company	84	207	61	36	12	2.21
b) The bus company services are offered in an efficient manner	64	210	83	27	16	2.30
c) I always give positive remarks about the bus services	83	190	75	38	14	2.28
d) I would recommend my friends to use the bus company in future	65	224	83	18	10	2.21
e) I will use the same bus company in future	79	213	63	30	15	2.22
<b>Average Mean</b>						<b>2.24</b>

Note. \*1 for 'strongly not satisfied' to 5 'strongly satisfied'.

The second objective of the study is to determine which dimension in the SERVQUAL that has significant effects on influence customers' satisfaction towards service quality provided by inter-district public bus companies in the Central Region areas of Sarawak state. The result from multiple regression analysis (refer Table 8) showed that all the dimensions have positive effects on customer satisfaction. However, three dimensions of service quality such as responsibility ( $\beta=0.114$ ,  $t=2.659$ ,  $P<0.000$ ), assurance ( $\beta=0.224$ ,  $t=2.4753$ ,  $P<0.000$ ) and empathy ( $\beta=0.534$ ,  $t=11.032$ ,  $P<0.000$ ) are significantly influenced the customers' satisfaction at 1% significant level. The result is consistent with other findings of the previous studies where all the five dimensions have positive relationship with customer satisfaction and the three dimensions i.e., responsibility, assurance, and empathy have significant effects on customer satisfaction towards service quality of public bus in Melaka (Malaysia), Kuantan, Pahang (Malaysia), respectively (Elma, 2015; Liu, Fadilah, Mohd, & Muhammad, 2014).

Table 8. Multiple regression analysis

Independent Variable	Unstandardized Coefficients		Standardised Coefficients	t-statistic	Sig.
	$\beta$	Std. Error	Beta		
(Constant)	0.105	0.09		1.159	0.247
Tangibility	0.037	0.038	0.029	0.97	0.333
Reliability	0.056	0.043	0.046	1.289	0.198
Responsiveness	0.132	0.05	0.114	2.659	0.008*
Assurance	0.252	0.053	0.224	4.753	0.000*
Empathy	0.596	0.054	0.532	11.032	0.000*

Note. Dependent variable: Customer Satisfaction; \* represents significant at 1%.

However, tangibility and reliability dimensions did not show significant effects on customer satisfaction for this study, even though tangibility and reliability showed significant effects on customer satisfaction towards the service quality of public buses for several studies (Zaherawati, Zaliha, Mohamed, & Zuriawati, 2010; Thian, 2012; Nor, 2013; Elma, 2015; Liu, Fadilah, Mohd, & Muhammad, 2014; Luke & Heyns, 2017; Wu et al., 2016; Weng et al., 2018). Tangibility attributes were not the main concern among inter-district public bus users in the Central Region areas. The buses have homogenous characteristics and appearance such as size and adequacy

capacity, the number of seats, ample legroom, and foot space for the seat, and cleanliness. The bus companies also sharing bus stations and amenities such as toilets and waiting areas. Meanwhile, in terms of reliability dimension, the bus companies offer competitive prices for tickets and travel time (departure and arrival time) because these buses using the same routes and go to the same destination. Thus, there is not much difference in terms of tangibility and reliability attributes among inter-district public bus companies and caused both dimensions did not have significant effects on customer satisfaction. However, as both dimensions have positive relationship with customer satisfaction, the bus companies need to consider these factors to improve the service quality.

In the Sarawak state context, the results of the study are contradicted with the result of study conducted by Thian (2012) which the tangibility was the most significant dimension is the best predictor for customers' satisfaction towards of service quality of public transportation in Kuching, Sarawak. The different perception towards factors of service quality is due to the location of the study, type of public bus, respondents' profile, and individual preference. The study conducted by Thian (2012) was in Kuching city (capital city of Sarawak state), there are alternatives to public bus transport companies and tangibility factors would be their main concerns if they choose the public transport. This study measured service quality for inter-district bus and the buses services are purposely for travelling for a long journey, thus responsibility, courtesy of employees, individualized attention are the main concerns among the public bus users in the study areas. According to Cheng et al. (2010), service quality cannot be determined from appearances, as process quality refers to the level of services, as determined by customers during the service process. While Gronroos (2007), pointed out that a service is an activity or series of activities of intangible nature that normally, but take place in interaction between customer and service employees and or service provider, which are provided as solutions to customer problems.

Model summary in Table 9 shows that adjusted R square is 0.723. This means out of 400 respondents, their perception of quality service about 72% of the dependent variable service quality is explained by the independent variables i.e., tangibility, reliability, tangibility, responsiveness, empathy, and assurance. Thus, the study of customers' satisfaction towards services quality provided by inter district public bus companies in the Central Region of Sarawak is supported by service quality model (SERVQUAL) where all the five dimensions of service quality can explain the customers' satisfaction level.

Table 9. Model summary

R	R Square	Adjusted R Square	Standard Error
0.852	0.726	0.723	0.29618

## 7. Conclusion and Implication of the Study

Excellent service quality is important to grasp customer attention. Customer will choose services who able to fulfil needs and meet their expectation.

For the case of inter-district public bus companies in the Central Region of Sarawak state, the low mean score in the five service quality dimensions (2.12 to 2.22) affects the low level of customer satisfaction towards service quality provided. Even though the customer satisfaction level and mean score for all service quality dimensions is low, the study proved that all the five service quality dimensions show a positive relationship with customer satisfaction. Thus, inter-district bus companies should improve all the service quality dimensions. Meanwhile, the adoption of the SERVQUAL model for this study able to highlight important service quality attributes for inter-district public bus transportation as three of the dimensions i.e. responsiveness, assurance, and empathy show significant effects on customer satisfaction. The findings from this study could be a guideline for companies or businesses and related agencies to improve service quality delivery in public bus transport and make proper strategic planning in their operation management.

Caring and understand customer needs, show a good impression and manner to customer, and have good knowledge of business service are important aspects considered by customers when they used and choose a particular public bus company. The employees of the public companies such as counter staff, bus driver, and bus conductor need to provide themselves with good knowledge in their business, know how to handle customer needs, and able to communicate effectively. Providing and supporting employees with customer service management courses is very important to expose workers to the nature of the business and service industry and help them to understand the business operation process. For example, involving all employees in a strategic management workshop could be helpful to expose them to vision, mission, and strategic operation management, especially for

new and inexperienced workers. Besides, communication training is important to staff counter, bus driver, and bus conductor as they deal directly with customers. Meanwhile, management and problem-solving skills trainings are important for all employees (top to bottom) as the business operation involved all staff in the company. In fact, the bus companies should conduct service quality survey among their customers to monitor their service quality continuously and the information will be useful to enhance their service quality occasionally. Improving services quality among bus companies is not just to achieve high customer satisfaction but it could be retained existing customers and attract more customers using their bus services in future.

## 8. Limitations and Recommendation for Future Research

There are a few recommendations for future research. Future researchers may increase the sample size, investigates the service quality of other types of public transports, using specific attributes to measure the service quality, and covered other districts in Sarawak as well. Large sample size and expand the location of the study would enhance the accuracy and reliability of the findings. Next, using specific service quality attributes is possible to highlight the specific service quality attributes of public transportation in the context of Sarawak state. Different types of public transport may have different types of service quality attributes. In addition, using the specific service quality attributes to investigate the service quality of public transport will contribute to the theoretical and literature on the service quality for the public transportation industry.

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## Notes

Note 1. *Bumiputer* refers to indigenous native peoples in Sarawak state, including Malays, Melanau, and Dayak (Ibans, Orang Ulu, Kenyah, Kayan, Kelabit, Punan, etc.).

Note 2. Transit buses refer to a type of bus for a short-distance route within the district only.

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