DETERMINANTS OF PASSENGER'S SATISFACTION ON URBAN RAIL TRANSIT IN CHERAS, PETALING JAYA AND SUBANG JAYA, MALAYSIA

BY

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 15,390.

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AGT	Automated Guide Way Transit
ANOVA	Analysis of Variance
BRT	Bus Rapid Transit
CFA	Confirmatory Factor Analysis
CO	Carbon Monoxide
CO2	Carbon Dioxide
D	Diversities
DV	Dependent Variable
EFA	Explanatory Factor Analysis
F	Facilities
GBD	Burden of Disease
GHG	Greenhouse Gas
IMF	International Monetary Fund
IPA	Importance Performance Analysis
IV	Independent Variable
KL	Kuala Lumpur
KTM	*Keretapi Tanah Melayu*
KTMB	*Keretapi Tanah Melayu Berhad*
LRT	Light Rail Transit
MRT	Mass Rapid Transit
NAPIC	National Property Information Centre

NOx	Nitrogen oxides
PP	Psychological Profile
PS	Passenger's Satisfaction on Urban Rail Transit
S	Safety
SEM	Structural Equation Modelling
SPSS	Statistical Package for Social Sciences
SQ	Service Quality
VOC	Volatile Organic Compounds

PREFACE

It is compulsory to carry out this research project in order to accomplish our studies which is Bachelor of Economics (Hons) Financial Economics. The title of this research project is "Determinants of Passengers' Satisfaction on Urban Rail Transit in Cheras, Petaling Jaya and Subang Jaya, Malaysia. This topic is conducted to examine the passengers' satisfaction on urban rail transit regarding the service quality, facilities, safety, diversities and psychological profile.

In this era of globalization, many people are relying on public transportation and public transports taking an important role in a developing country. It is of the utmost importance for every parties such as government, communities and corporations. This research will provide a better understanding of passengers' satisfaction on urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

This research project considers personal, social and environmental factors to explain the passengers' satisfaction on urban rail transit. In short, this research project will provide the public with clear information and data for a better understanding in satisfaction towards urban rail transit.

ABSTRACT

This study aimed at examining the determinants of passenger's satisfaction with the using of five different aspects. There are five independent variables, included the service quality of urban rail transit, facilities that urban rail transit have, Safeness, diversities and psychological profile. While the dependent variable is the satisfaction towards urban rail transit. Structured self- administered questionnaire were distributed to passengers or residents among Cheras, Petaling Jaya and Subang Jaya in Malaysia using the stratified random sampling technique. A quantitative research method, with the use of questionnaire as an instrument for this research. The sum of population is 1,713,652 people in Cheras, Petaling Jaya and Subang Jaya, Malaysia. Usable responses were received from 283 passengers or residents in these 3 area, giving a response rate of 70.75 per cent. Multiple Linear Regression Analysis were performed using the Statistical Package for the Social Sciences (SPSS). The results indicate the service quality, facilities, safety and psychological profile have the significant effect on passengers' satisfaction whereas diversities show insignificant effect on passengers' satisfaction.

Motivation to conduct this research is to prove that the rail transit is important to public and indicate public rely on rail transit rather than own transport.

Keywords: Service quality, facilities, safety, diversities, psychological profile, passengers' satisfaction

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

An urban area is a locality with high population density and fundamental facilities of build environment. The human population growth increased more in urban areas compare to rural areas. An urbanization started during the industrial revolution, when labourers moved towards the manufacturing hubs in towns and cities in order to acquire opportunities and employments in factories as agricultural jobs became less common. The development of urban populace and the rise of cities were viewed as major advancements of the nineteenth century.

As the number of population increased in each country, the total frequency of trips in travelling also increases for each country. The public transport network plays a significant role in the urban areas. Passengers includes workers, tourists, and students are expected to get the best services provided by the public transportation. The comparatively good non-private vehicles system should be easier to access and the cheaper cost of entry for the users. However, public transport services in Malaysia are distinct from other metropolitan countries. Majority of Malaysian prefer to use personal vehicles, so the public transportation became the secondary choice for people in the country.

In recent years, number of automobile owners in Malaysia bloomed due to the rising of populace in Malaysia, Table 1.1 shows the overall number of automobiles registrations in Malaysia according to the state in the year 2017 (Malaysia Automotive Association, 2017). The vehicles number on the roads hits 28,920,157 units in the countries. As expected, most of the vehicles owner are in Federal Territories, Johor and Selangor states. Federal Territories includes Kuala Lumpur, Putrajaya and Labuan made up the highest automobile numbers which was 6,525,432 units; the second highest was Johor which reached 3,638,857 units; while Selangor placed third with 2,975,802 units. Penang and Perak follow closely behind

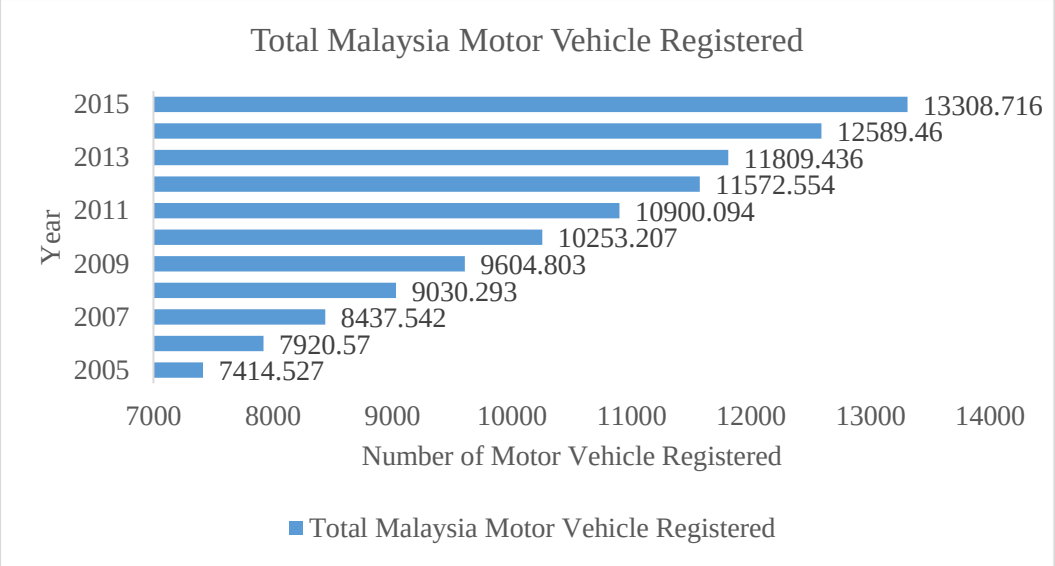
with 2,673,907 units and 2,274,725 units respectively. Therefore, this caused the roads in those states congested with vehicles.

Table 1.1 Number of Motor Vehicle Registered in Malaysia 2017

No.	State	Total
1	Perlis	116,231
2	Kedah	1,380,952
3	Pulau Penang	2,673,907
4	Perak	2,274,725
5	Selangor	2,975,802
6	Federal Territories	6,525,432
7	Negeri Sembilan	970,371
8	Melaka	864,194
9	Johor	3,638,857
10	Pahang	1,066,464
11	Terengganu	650,668
12	Kelantan	905,024
13	Sabah	1,254,839
14	Sarawak	1,832,292
15	Business Partner Portals	1,790,399
	Total	28,920,157

Source: Adopted from Malaysia Automotive Association, 2017

Figure 1.1 Number of Motor Vehicle Registered in Malaysia from 2005-2015



Source: Adopted from Malaysia Motor Vehicle Registered, 2018

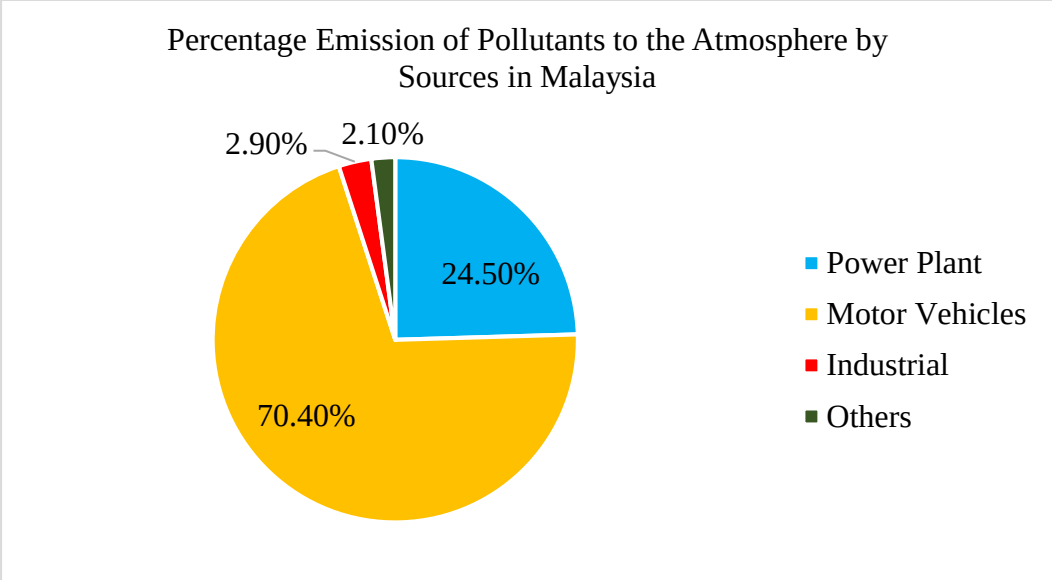
The illustration of the quick development of motor vehicles population in Malaysia was captured in Figure 1.1. The figure shows the comparison of total transportation number registered in Malaysia from 2005 to 2015. In the duration of 10 years, the number of owners in Malaysia raised about four times from the year 2005 compared to the year 2015. On the other hand, the restricted growth of road length and highway capacity gave a limited space to accommodate the tremendous increased vehicles in the city.

Due to the excessive of private vehicles, it caused the problem such as accidents, environmental pollution and massive traffic jam. Clearly, it can be seen that the journey time to a desired destination become longer. According to Aldukali Salem I. Almselati, Riza ATIQ Rahmat, and Othman Jaafar (2011), massive traffic congestion especially during the weekend and public holidays, limited of car parking place as well as the environmental pollution are the most concerned problems in the Klang Valley because of the extreme growth of motorization in those areas.

For this reason, government policy encouraged the public to use the public transport instead of personal vehicles for reducing the severe traffic jams, numbers of accidents, insufficient car parking spaces and the problem of environmental

pollution such as air and sound pollution in Malaysia. The figure 1.2 shows the percentage about the sources of emission caused air pollutants in Malaysia. Motor vehicles is the largest contributor to this pollution, which is 70.4 per cent. Significant amounts of carbon monoxide, nitrogen oxide, particulate matter, ozone, and other harmful gasses as well as smog-forming emissions produced by the automobile into our air. The rapid growth of vehicles reduced the air quality in Malaysia.

Figure 1.2: Percentage Emission of Pollutants to the Atmosphere by Sources in Malaysia



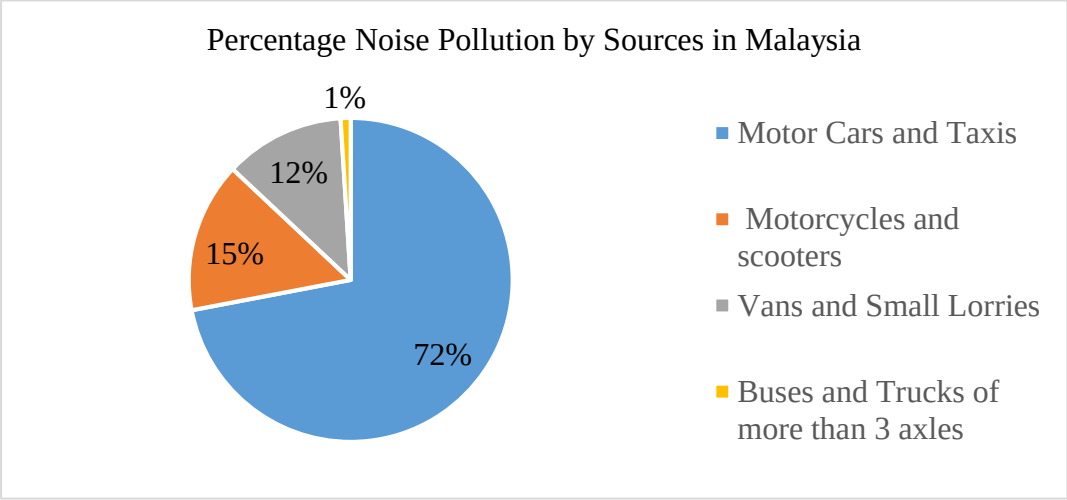
Source: Adopted from Compendium of Environment Statistics, 2018

In the other hand, under noise pollution, from the studies of Sumiani Yusoff & Asila Ishak (2005) claimed the rising in the urban highways number built around community and residential areas around the city has caused major sound pollution. The figure 1.3 shows the percentage of sound pollution by contemporary motor vehicles in Malaysia. From the figure, motor vehicles are the largest emission source of noise pollutants, the percentage occupied 72 per cent. If this problem is neglected and overlooked by government agencies, it is estimated that Malaysia will face high level of traffic congestion and adverse effect of environmental concerns, traffic jam and not enough parking space problem in the city after 10 years (Rozmi Ismail, Mohammad Hesam Hafezi, and Rahim Mohd Nor, 2012). In

addition, Mohd Rizaimy Shaharudin, Amir Imran Zainoddin, Jamaludin Akbar, Dahlan Abdullah, and Saifulah (2018) stated that the major elements for a country to growth through its public transportation, especially at the places where the area is crowded with people. Thus, it is important to take action on the development of public transportation.

Increasing rapidly on developing rail transit as they are better for urban areas compare to other public transport. According to Henry and Litman (2006), there are several benefits of rail compare to conventional bus transit. For instance, rail transit is more likely to offer better quality of service such as speed, convenience and comfortable environment than of buses. Apart from that, by using train transit, it aids reducing traffic and solve parking problems effectively and efficiency. In general, rail transits have more prestige than other public transportation, thus it will get more public support. Voters turn out an impression of being voluntary to boost for rail upgrades rather than bus enhancements. Rail stations regularly serve as an impetus for more-compact multi-modular improvement, which use extra decreases in per capita vehicle miles other than simply those moved from car to travel. Therefore, rail transit compare to other public transit like bus and taxi are more attractive.

Figure 1.3: The Percentage Noise Pollution by Contemporary Motor Vehicles in Malaysia



Source: Adopted from Sumiani Yusoff and Asila Ishak, 2005

In this case, the development of rail transits such as Commuter (KTM), Mass Rapid Transit (MRT) and Light Rail Transit (LRT) system has increased in high population density areas. In Malaysia, even the public transportations such as commuter, LRT, MRT, monorail, taxis, buses are advanced and growing vast in the city, but these are become the last choice for people because private or personal transportation due to their preference. Hence, it is important to comprehend the reason why people do not prefer public transportations. To understand this issue, the main elements that affect the usage of public transportation can be determined by the satisfaction gained by the consumers' experiences. According to Oliver (1997), said satisfaction is defined as the response of the user's fulfilment. Satisfaction is a judgement related to the trait and feature of a good or service. It also means the enjoyable level of consumption-related performance, involving the levels of below or over-fulfilment.

1.1 Research Background

Public transportation definitely plays a energetic role in traveling passengers to workplace or a desired destination and the important purpose is for reducing the traffic congestion (Kamaruddin Rohana, Osman Ismah, and Pei, 2012). In 1935, British introduced and setting up the first public transportation company in Malaysia named General Transport Company. Nevertheless, public transportation was not popular during that time as most of the people were walking and cycling. Between the periods 1960 to 1990, the mini bus services became popular to the people, the users of using public transportation increased to sixteen per cent. In 2005, the government improved the public transport services and reached thirty per cent of the users in Klang Valley. Nowadays, the public transportations are highly developed in Klang Valley. Particularly, the bus services are extended to railway services includes commuter, LRT, MRT, monorail, and so on. Consequently, those public transportation services are organized by both public and private cooperation which have poor integration and coordination.

Nowadays, population in Malaysia is around 32.6 million people (Department of Statistics Malaysia, 2020). The land area of Malaysia is around 330,803 square kilometres (127,722.6 square miles), it is 98 individuals per square kilometre. Malaysia is a multi-ethnic country where civils consists of Malays, Chinese, Indians and more racial. The study shows that 50.4 per cent of the total population are Malays and the rest are other ethnic groups including minorities and majorities. According to Malaysia Population (2019), there are roughly 75 per cent of Malaysians lived in urban areas. Kuala Lumpur (KL) is the largest capital in Malaysia. In Malaysia, Kuala Lumpur is the only capital over one million populace (1,453,975 people). Klang Valley is the combination of Kuala Lumpur and the adjoining of towns and cities in Selangor. There were total 7,780,301 of people stayed in Klang Valley (Kuala Lumpur Population, 2019).

Due to the huge population in Klang Valley, the demand of private transportation increased. The crowded area includes Cheras, Subang Jaya and Putrajaya. The rising of private transportation usage brought various challenges such as serious traffic congestion which will cause high expenditures, interruptions and excess of energy; Volatile Organic Compounds (VOC), Nitrogen Oxides (NOx), Carbon Monoxide (CO), and Carbon Dioxide (CO2), are released by the private vehicles will damage human health and cause diseases; the noise polluted caused by private vehicles will affect human welfare like hearing damage, sleepless, stress and unproductivity (Rodrigue, Comtois and Slack, 2006). In this study, it is encouraged that the citizens efficiently utilize the communal transportation in Malaysia. Hence, this research sought to ameliorate public transportation services quality and others vital elements in order to let the public transportation as the major vehicle usage in Malaysia.

Buses, vans, trains, and taxis are the common types of communal transportation in Malaysia. At presently, however, most attracted public transportation and which can accommodate multiple passengers at the same time are railway transits. This research is section of a current rail transit includes LRT, MRT and commuter. According to Amsori Muhammad Das, Mohd Azizul Ladin, Amiruddin Ismail, and Rahmat (2013), numerous nations desire to exploit rail

transportation network as an option in contrast to solve out the city's transportation issues. For example, Jakarta Indonesia, Rzeszow Poland, Mumbai India, Calabar Nigeria, Moscow, and Jumeirah Dubai and others. This research is to investigate as well as determine advancement of performance and passengers' satisfaction towards the rail transit in Malaysia as well as increase inputs from consideration factors that still should improve.

The integrated rail-based transit system map which is mainly serves the people in the area of Klang Valley or the Greater Kuala Lumpur was shown in Figure 1.4. There are currenly consist of ten rail lines in Klang Valley; three LRT lines, three commuter rail lines, two Express Rail Link (ERL) lines, one KL Monorail line and one MRT line. The KL monorail and LRT are operated by Prasarana Malaysia Berhad. LRT lines includes Ampang, Sri Petaling and Kelana Jaya Line. Alternatively, Seremban line, Port Klang line and Skypark line are operated as Commuter rail administered by Keretapi Tanah Melayu Berhad (KTMB). KLIA Express and KLIA Transit line are operated by Express Rail Link (ERL) Sdn Bhd. While a MRT line operated by MRT Corporation Sdn Bhd along the Sungai Buloh - Kajang (SBK Line). In conclusion, Integrated Transit System of Klang Valley consists of LRT, KTM Commuter, MRT, KL Monorail, KLIA Transit and KLIA Express that operate seamlessly together.

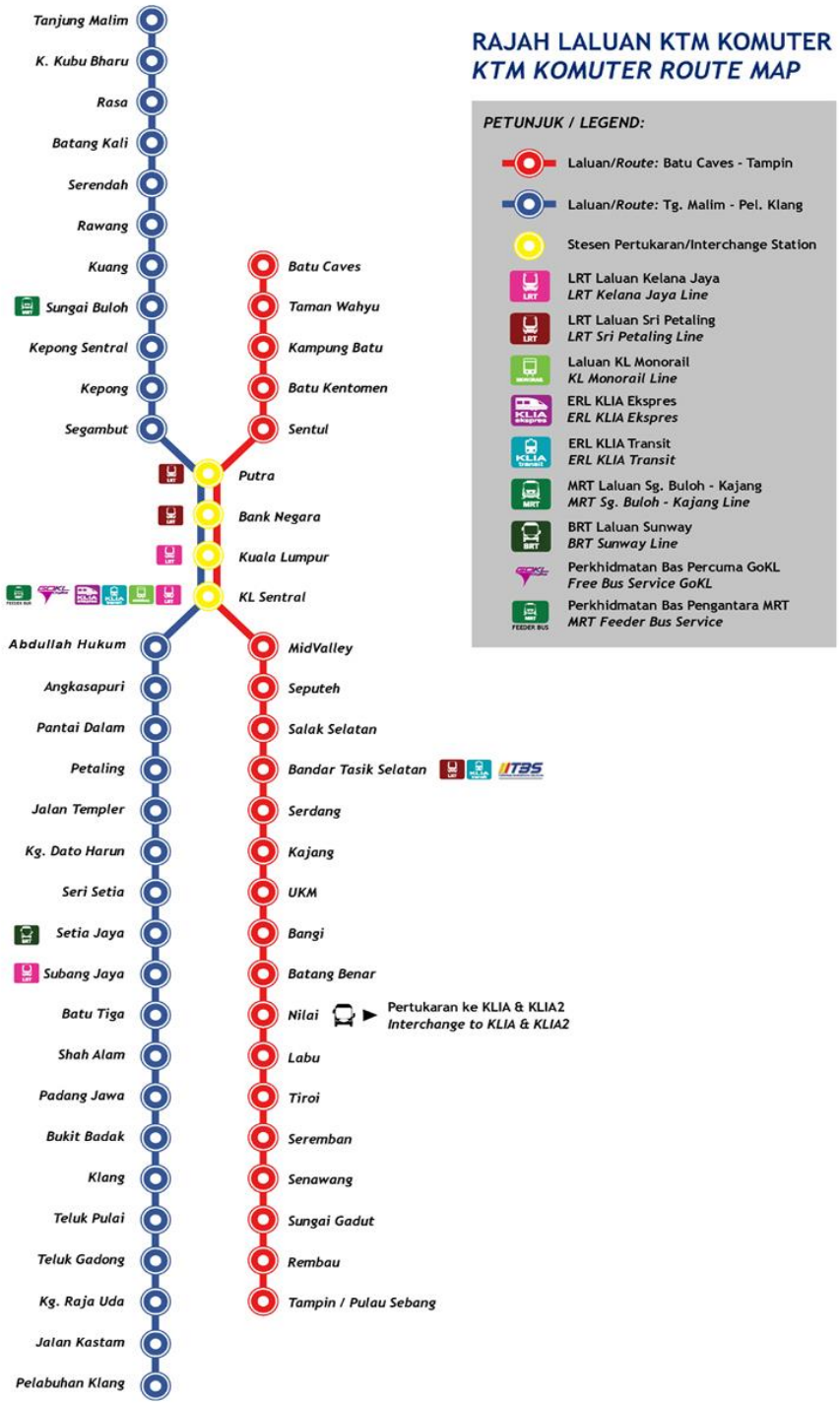
Figure 1.4: Klang Valley Integrated Rail Transit Map

Source: Adopted from Prasarana Malaysia Berhad, 2019

Rail transportation is early development in KL, Malaysia, yet it has expand quite extremely in the previous ten years. From the research of Masirin, Salin, Adnan Zainorabidin, Martin and Samsuddin (2017), the first rail transit introduces was KTM Commuter in 1995. KTMB offered 248 commuter services daily, served forty-five stations along 175 route-kilometres. Figure 1.5 shows the map of commuter service by KTMB. In the beginning, Rawang-Seremban route, Sentul-

Port Klang route as well as Rawang-Kuala Kubu Baharu Shuttle routeare the only network lines.

Figure 1.5: Map of the Passenger Services of KTMB and the Commuter Rail



Source: Adopted from KTM Berhad, 2018

Comparing between these two figures, Figure 1.4 shows the current integrated railway map in Klang Valley while Figure 1.5 displays the map of railway transit in early development in KL area. Even the huge expanding of rail transportation in Klang Valley has been developed by the policy maker, Malaysian still more prefer on personal cars and public transport is the second choice. The growth of vehicle registered in Malaysia across the years has bring effects to the city such as transportation jamming, air and sound contamination as well as limited parking space that will not be easily to solve out. With the intention of diminish the issues; it is compulsory to find out the reason of why people in Malaysia not using on rail transit instead of own transport.

There are some aspects need to be taken into justification which have to be improved in order to promote the use of rail transits. The elements consist of service quality, safety, facilities, diversities, and psychological profile. In recent studies, the researchers found that service quality was significantly influence the passenger's satisfaction of using public transit (Storbacka, Strandvik and Gronroos, 1994). Besides, according to Jayaraman, Choong and Soh (2011) said safety positively affected the utilization of public transit, it was also the main concern by the female passengers. The safety performance characteristic includes following the speed limit by a driver and the number of accidents occur of using the public transport will decrease the safety. According to Karlsson and Larsson (2010), the long journey of standing in rather than seating will affect the satisfaction of using public transit. Therefore, the facilities factor such as enough seat is provided for passengers in the train will increase the satisfaction performance as well as usage of communal transport in Malaysia (Amsori Muhammad Das et al., 2013).

On the other hand, characteristics of diversities like age range, income and employment status will affect the frequency of using public transportation. People from study to employed and employed to unemployed will change the use of public transport to private or less transportation (Efthymiou and Antoniou, 2017). These five factors that determine the passengers' satisfaction are utilized to test our respondents in Cheras, Petaling Jaya and Subang Jaya.

In view of this, public transits companies trying their best to offer the best services to the people. However, it was not fully utilized, the private transportation in the city still increasing along the time. So, it is vital for us to understand how the factors influence the satisfaction of the public transit's consumers. The purpose for delivering the excellent services to passengers was to enhance the passenger's fulfilment. For surviving in the long term, an organization must enhance its performance and increase the consumer's satisfaction towards its products and services. This is because customers are the main sources to earn profit to an organization, they are willing to pay high prices to get the services and products which can achieve or over their expectations as well as satisfaction. Therefore, the industries of public transit have to improve the elements in order to upsurge gratification of passengers and gain huge revenue as well as build good reputation.

1.2 Problem Statement

Although there is various types of public rail transportation in Klang Valley or the Greater Kuala Lumpur area, it still has to emphasize that Malaysian prefer to use private car more than the public transportation in Malaysia. According to Hasniza, Edie, Kamalludin Bilal and Azlina (2019) claimed that the lack of facilities on rail transportation has reduced the satisfaction of ridership on urban rail transits and then leads users shifting to personal vehicle which has caused the traffic congestion in the developing city, especially in Klang Valley. In the local facilities management perspective of railway station, the important criteria that caused dissatisfied of rail passengers such as ticketing system, short waiting areas or platform capacity, maintenance of infrastructure and information provision. The ticketing system is insufficient for crowded in peak hours or holiday period, people have to line up longer for rail ticket. Besides, insufficient capacity of the platform or short waiting areas during peak hours decrease the comfortable level of passengers. In addition, slow and low responsiveness on maintaining the physical facilities disallowed people to fully utilize the resources. These facilities management issues are ought to be stressed out for convincing people to use rail

transportation and increase their satisfaction on using it, especially in Greater Kuala Lumpur area where heavy traffic congestion has daily.

Furthermore, according to the studies of Ahmad Nazrul Hakimi Ibrahim, Siti Khairunisa Zainal and Muhamad Nazri Borhan (2019), service quality plays one of the major role on passengers' satisfaction towards rail transportation in Kuala Lumpur. Based on their research analysis, there are some services that consumers felt low level of satisfaction but highly important. This type of expectation gap rises consumers to shift public rail transits to personal vehicles. For instance, price of ticket, quality of ticket counters service and the punctuality of rail schedule on both departure and arrival time are required high concentration and improvement action taken by the rail management. People with one car in the house avoids on taking rail transportation, rather by bus because of expensive rail ticket. Besides, the low performance on empathy of employee and the low quality service given make customers unhappy to use rail transportation and so dropping their satisfaction level. The inaccurate schedule of departure and arrival of train leads consumers to wait longer and delay their schedule. Therefore, cost and time-effective are the major barriers for car owner not shift to use public transits.

In addition, users pay more attention on the safety of using rail transportation. Since government improved the rail transportation in Malaysia is for reducing the accidents happened on road which caused from the high numbers of vehicles. However, a rail transit with crowd people increases the safety and security problems during peak hours. Safety and security issues includes the injury or threat of loss of personnel or property, risk or damage from intentional or accidental, fraud, theft, attacks, privacy violations and other such conditions. Based on the research of Abdul Hamid, Tan, Mohamad Zali, Rahamat and Abdul Aziz (2015) stated that some issues regards safety and security problems faced by travellers of rail transportation in Malaysia. First and foremost, passengers feel unsafe and afraid when taking rail transportation, especially at night. The insufficient of brightness at the waiting area make user fears at dark. Besides that, sexual harassment and violence always happened to women during their daily rails. Moreover, only 2.7 per cent of the survey data result shows that passengers in Petaling Jaya agreed that

rail transportation services within their areas are safe while the other 97.3 per cent of the respondents feels unsecure. Most of the cases occurred are robbery and snatched-thieves, and sexual harassment. The feelings of fear, unsafe and unsecure on using rail transportation decrease the satisfaction of ridership on using rail transits. Therefore, the level of safeness should be increase to promote user's satisfaction.

Another reason that affect the satisfaction of users on using rail transportation in Malaysia is the behaviour of passengers. In fact, everyone has distinct type of behaviour towards external conditions like avoiding any unexpected events happen such as theft or injuries. During peak hours, inside the rail transit and the railway station are too crowded makes passengers feel uncomfortable decrease their satisfaction on using rail transit (Abdul Hamid, Tan, Mohamad Zali, Rahamat and Abdul Aziz, 2015). This is because everyone in the crowded rail needs to put effort for taking care of his or her own safety and security. In addition, they need to find a comfortable distance with others in order to make a safe environment for themselves in the rail transit. Therefore, people who need far distance with other in order to protect themselves feel low satisfied on using rail transportation during peak periods.

Finally yet importantly, in a research conducted by Zegras and Gakenheimer (2007), they have found that the usage rate of the public transport has been decreased by 19 per cent from the year 1980 to 2007. Unfortunately, the progression of decentralization in Malaysia has not been helpful towards curbing the underlying issue. From the year 1996 onwards, the decentralization process began to spiral out of control which later on worsened by many economic recession and market crashes. One of the many examples on the case is that the abandonment of the project in Plaza Rakyat, the bus and light rail transit terminal (Rosly and Azmizam Abdul Rashid, 2013). The reason for that being most Malaysians around the cities prefer to have their personal transportation. National Car projects came up with numerous affordable vehicles was one of the many contributors of the shifts in transportation preferences (Kasipillai and Chan, 2008).

In a nutshell, the rail transportation is important in a developing country (and even important in a developed country). It is significant to study the determining factor that affect the passengers' satisfaction on using rail transits in Malaysia. The quality of rail transportation will increase the life quality of Malaysian and thus, improve the factors to promote consumers' satisfaction and loyalty on using rail transit.

1.3 Research Objective

This research examines the factors that affect passengers' satisfaction on urban rail transit in Cheras, Petaling Jaya and Subang Jaya. The objectives of this research are distributed into two portions, specifically general objective as well as specific objective.

1.3.1 General Objective

The general objective in this study is to examine determinants of passengers' satisfaction on urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

1.3.2 Specific Objective

This investigation will be alienated into five detailed objectives:

1. Identify the relationship between service quality and passengers' satisfaction of the urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

2. Identify the relationship between facilities and satisfaction of the urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

3. Identify the relationship between safety and satisfaction of the urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

4. Identify the relationship between diversities and satisfaction of the urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

5. Identify the relationship between psychological profile and satisfaction of the urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

1.4 Research Question

1. Does the passengers' satisfaction significant affect the overall usage of urban rail transit in Cheras, Petaling Jaya and Subang Jaya?

2. Does the service quality significant affect the passengers' satisfaction on urban rail transit?

3. Does the facilities significant affect the passengers' satisfaction on urban rail transit?

4. Does the safety significant affect the passengers' satisfaction on urban rail transit?

5. Does the diversities significant affect the passengers' satisfaction on urban rail transit?

6. Does the psychological profile significant affect the passengers' satisfaction on urban rail transit?

1.5 Hypothesis Development

Hypothesis 1

The relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

H_0: There is no significant relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya, Subang Jaya.
H_1: There is significant relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya, Subang Jaya.

Hypothesis 2

The relationship between service quality and passengers' satisfaction on urban rail transit.

H_0: There is no significant relationship between service quality and passengers' satisfaction on urban rail transit.
H_1: There is significant relationship between service quality and passengers' satisfaction on urban rail transit.

Hypothesis 3

The relationship between facilities and passengers' satisfaction on urban rail transit.

H_0: There is no significant relationship between facilities and passengers' satisfaction on urban rail transit.
H_1: There is significant relationship between facilities and passengers' satisfaction on urban rail transit.

Hypothesis 4

The relationship between safety and passengers' satisfaction on urban rail transit.

H_0: There is no significant relationship between safety and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between safety and passengers' satisfaction on urban rail transit.

Hypothesis 5

The relationship between diversities and passengers' satisfaction on urban rail transit.

H_0 : There is no significant relationship between diversities and passengers' satisfaction on urban rail transit.

H_1 : There is significant relationship between diversities and passengers' satisfaction on urban rail transit.

Hypothesis 6

The relationship between psychological profile and passengers' satisfaction on urban rail transit.

H_0 : There is no significant relationship between psychological profile and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between psychological profile and passengers' satisfaction on urban rail transit.

1.6 Significance of Study

In majority of the empirical researches the members of this paper came across, there were numerous statistical analysis involved from both primary and secondary collection data that attempted to rekindle publics' interest to use rail transit services. Hence, the governments' approaches were limited to enhancement of facilities which was evidently ineffective over the course of 10 years (Kuala Lumpur City Hall, 2004). Number of passengers using KTM commuter decreased from 4.267 billion passengers in the year 2009 to 3.527 billion passengers in the year 2018 (Ministry of Transport Malaysia, 2018). From the year 2009 to year 2018, the number of passengers using KTMB services alone decreased by 17.34 per cent

whereas the number of registered private motor vehicles increased by 31.26 per cent from the year 2009 to year 2016 (Malaysia Automotive Institute, 2018). By understanding the motivators behind the influencing factors of the public's preference on the rail transit and public transportation in general, we may be able to fix the underlying problem to align with public's interest.

The purpose of this research is to classify the aspects that compel public to opt for communal transport as their primary type of transportation. To tackle this issue, this study can be referred to the research done by Ummi Aqilah Khalid, Syahriah Bachok, Osman, and Mansor Ibrahim (2014). They had found that there are a few major concerns that discourages passengers from using the rail public transport. Among those are the long waiting time and delay time, punctuality problems, poor ticketing systems and journey frequencies.

The restrictive aspect of the research by Ummi Aqilah Khalid et al. (2014) and this research investigates passengers' satisfaction towards rail transit was that their research heavily inclined on technical aspects of the rail transit service. Based on the research of Ghosh, Ojha and Geetika (2017) deemed that safety was another important factor affect the passengers' satisfaction towards rail transit. However, there are some others who found that safety should not be prioritised as they are borderline non-contributing when it comes to fulfilling customer's satisfaction (Feng, Cao, and Jia, 2018). Thus, safety was an included factor to test for its significance, relevance as well as public feedback on this aspect.

In addition, this research sought to identify the passengers' satisfaction through their point of view by including psychological profile while keeping factors such as demographic profiles, service quality and facilities within consideration. Numerous evidences suggested that negative perception causes predetermined mind set or perspective from the passengers affects the satisfaction levels of the passengers towards rail transit services (Azizan, Mohamed, Rahman, and Aziz, 2016). Moreover, Ummi Aqilah Khalid et al. (2014) regarded technology as one factor. Whereas in this research, facilities will be evaluated in its entirety to reflect the practicality of its use rather than focusing on the technology of the equipment

only. Another research suggested that certain diversity aspects from passengers deemed that comfort and crowd was the third most impactful to the perceived satisfaction level when it comes to rail transit experience, thus diversity is included as an addition analysis which has been neglected (Azmi, Mohd Nusa, and Rahmat, 2018).

In summary, this research aimed to provide definitive measures for certain elements such as the service quality, safety, psychological profile and facilities satisfaction for they are very much opinion based due to the assumption that the participants of our survey having asymmetric information complications. In the light of a better public welfare in the future, we hope our analysis may prove to be fruitful and thorough from the influencing factors which we proposed.

1.7 Chapter Layout

In the research overview, the objectives of the study laid out to the foundation to pinpointing the cause of underutilisation of rail transit services which leads to road congestion. The following chapter is literature review and theoretical model explains the relationship of variables that affects Passengers' Satisfaction towards the rail transit services. Chapter 3 introduces the methodologies used, research design, data collection and analysis methods. In Chapter 4, data collected will be used to rest for the feasibility for the research. Lastly, Chapter 5 concludes this research, complimented by its analysis and recommended solutions to the existing inadequacies.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

As a continuation from first chapter, the second chapter of this final year project would review some of the literatures that had been published by worldwide researchers to support this research. Firstly, the first part of this chapter will provide a brief outline on the theoretical and conceptual framework of this research and previous literatures that had applied similar framework in their studies. The second portion of chapter would then explore literature findings between independent variables and the subject of the research, passengers' satisfaction towards the rail transit service in Cheras, Petaling Jaya and Subang Jaya. In the third part, it illustrates the relation between the dependent variable and independent variable that the research had chosen as well as provide past literatures that involved similar variables to support our claim.

2.1 Review of the Literature

In accordance to our main research done by Ummi Aqilah Khalid et al. (2014), despite their approach being statistical analysis on the performance of the rail transit services in Klang Valley, they came to a conclusion found that 78 per cent of the passengers of rail transportation were often dissatisfied with the services and its efficiencies that has not been improved over time. This coincides with the statistics collected by the Ministry of Transportation in 2019, that the declining rate in rail transit users declined by 31.26 per cent (Malaysia Automotive Institute, 2018). According to Ummi Aqilah Khalid et al. (2014), the mean age of their collection was around 30 years old, average household income of RM 3,018 per month, while 4 out of 5 of the passengers had no alternate means of transportation of their own. During peak hours, about 60 per cent of the respondents had to take the second trip and 36 per cent the third trip in the morning. Throughout this

research, it has been discovered plenty potential benefits both directly and indirectly brought upon by the frequent use of rail transit services. Another research that also support the previous claim stressed that using rail transportation is superior in comparison on the time spent in active commuting had positive significant relationship with wellbeing (Martin, Goryakin and Suhrcke 2014).

Among other empirical references, this research team came across a number of common causes of the factors that abruptly decreases the likelihood of passengers to opt for private transportation alternatives. The main contributors were often originated to the present convenience from the road facilities. A research conducted by Dahalan, Haslinda Abdullah, Dsilva, Ismi Arif Ismail and Nobaya Ahmad (2012) discovered that there has been 56.6 per cent of the population around Kuala Lumpur uses their own transport even though the public are aware of the fact that such alternative contributes to congestion especially during the peak hours. Their research has lead them to believe that the non-contributing factors are more easily explored as there are multiple public feedbacks that indicates public transportation in Malaysia has been unsuccessful in comparison to our neighbouring country, Singapore. In contrast, the inconveniences caused by Kuala Lumpur road designs and city planning often outweighs the potential benefits that the rail transit may bring upon in their opinion.

In terms of service quality provided, the passengers frequently complained about the service attitude given by the service team. Some of the passengers complained that the servicing staffs severely lack professionalism and passengers sometimes dismissed to wait, ignored and received poor treatments (Noor Hafiza Nordin, Masirin, Mohd Imran Ghazali and Muhammad Isom Azis, 2015). This gave us the idea that good service quality will improve passengers' satisfaction on rail services. On the other hand, Dzuhailmi Dahalan et al. (2014) has conducted a research and found that a mean of 2.699 out of the 445 respondents agreed the facilities are at a satisfactory level. This translates that mainstream of passengers were not fulfilled with the situation of facilities. If the facilities' condition were bad, the perceived satisfactory level drops. However, their performance in general normally being perceived as technical over mechanical issues due to the fact that

the facilities were not regularly maintained even though complaints and feedbacks ever constantly given.

When it comes to safety, Hafezi and Ismail (2011) found that the lack of securities around the stations of the public transport area were amongst the main reason why the public does not feel safe or having the perception that it is reliable to use so. On the other hand, Rohana Sham, Muhamad Hussein, and Hairul Nizam Ismail. (2013) also found a solid connection that safety positively correlates to passengers' satisfactory levels towards rail services. They observed the reaction, crowd behaviour, number of passengers in bus stops and stations that were well maintained. In conjunction to our research, a research carried out by Dahalan et al. (2015) stated diversity is confidently related to passengers' satisfaction, especially comfort and overcrowding is confidently related to passengers' satisfaction. Overcrowding still persists in Klang Valley by 140 per cent and Kelana Jaya LRT line by 180 per cent thus making the trips uncomfortable especially peak hours. This spelled uncomfortable for most passengers, hence it will negatively impact public's willingness to take the rail transit.

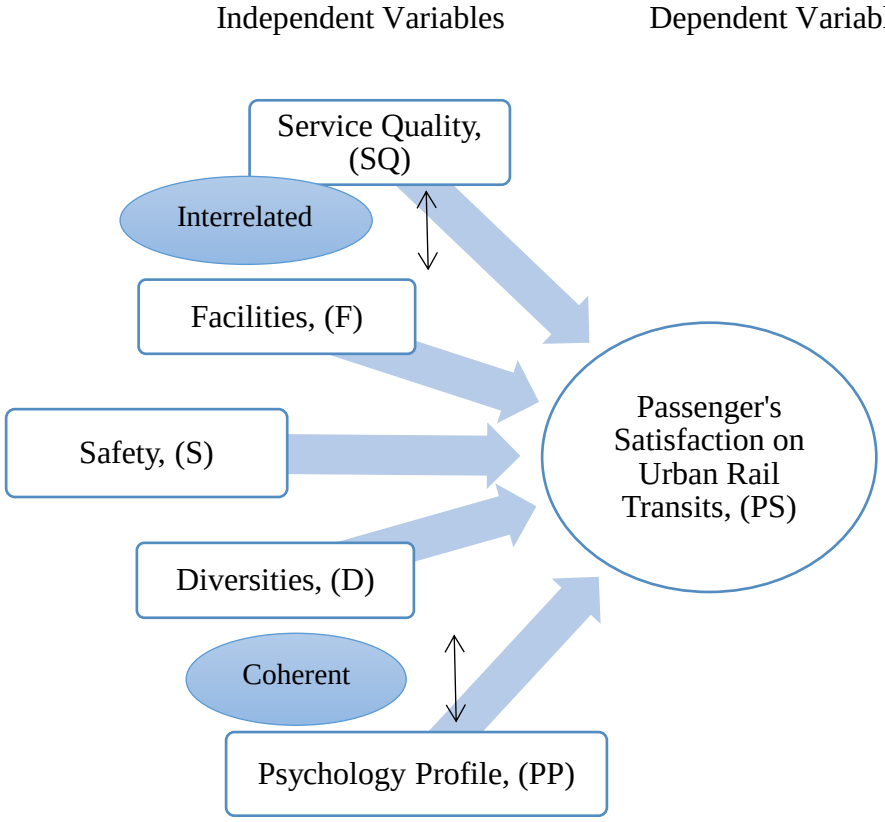
A research focused on psychological perception and it positively influences youth satisfaction towards rail transit in Malaysia. The takeaway from this research is that the perceived ambient environment strongly discouraged urban adolescence to exploit communal transportation as their primary mode of conveyance. This includes noisy coaches, free seating which sometimes are uncomfortable, long distance to rail station and lack of technology integration in rail services. Only 6.3 per cent of Malaysian youth involve superfluous public transportation, thus their dependency on public transport could be non-existent in the near future (The Malaysian Institute for Research in Youth Development, 2011).

Hence, target of this research on the potential contributing determinants that might encourage the public to opt for rail transit as their alternatives in their future, thus having this research as a complimentary note to enhance the existing researches conducted on Malaysia public transportations. Dahalan et al. (2015) concluded a similar finding that the majority of the public are not satisfied with the present

public transportation efficiency, punctuality, trip schedule, other passenger's discipline and the lack of comfort from the rail transit.

2.2 Conceptual Framework

Figure 2.1: Proposed Research Framework



Source: Modified from Chakraborty and Sengupta, 2014

In order to carry out this research, a comprehensive framework from the research of Chakraborty and Sengupta, 2014. The functional quality and flexibility from their model were removed and modified generic requirements to diversities and psychological profile. Determinants such as service quality, facilities and safety were added to suit this research.

On the other hand, depictions was included from other research to investigate whether influences from independent variables can be supported.

Among those relationships are passengers may judge service quality based on the facilities provided, diversities amongst each individual is closely linked to their psychological profile and the condition of the facilities may influence the passengers' perception safety.

2.3 Hypothesis Development

2.3.1 Overall relationship between passengers' satisfaction on usage of urban rail transit

Amongst many of the criteria that we have researched, one common identity that we found which is the most impactful in piquing the interest thus leads to the development of the practice or habit in using rail transit for an individual, the first impression/experience in adapting this option. This is why European Service Quality Standard often set its management quality by the service provided to the customer by performance and customers' satisfaction (Anderson, Condry, Findlay, Ardao, and Li, 2013). While customer expectation generally incurred no significant impact on the passengers' satisfaction for rail transit, the research by Kamaruddin Rohana, Osman Ismah, and Pei (2012) stated that the environment showed positive significant relationship to passengers' satisfaction. According to a research done by Ghosh, Ojha and Geetika (2017), regression analysis showed the top five amenities needs to be improved for the rail station in Kanpur, India, 3 of them belong to the cleanliness category, while another was the staffs' willingness to assist customers and the last one being security of the station. In another words, 4 out of 5 items that average passengers noticed that needs improvement were the presentation of the environment.

All the factors included were the most common factors and we pay little attention to notice, first impression that mattered. For many of the researches, the prime discouraging factor that we found wanting is also point

towards rail transit is its negative feedback either heard from another, or rumours incorporated with one or few relevant experience that could reinforce the negative first impressions. For an example, an unfriendly service attitude from staff, a visibly cracked coach window, a vulnerable environment, an unpleasant crowd and one delayed trip during rush hours. In another research on passengers' satisfaction by Eboli and Mazzulla (2012), they have found that consumers may not be having unified or intelligent judgement when it comes to preferences. In fact, most customers heavily rely on aspects that are perceived emotionally or one that suit ones' preference.

Hence, we have come to conclusion that this invisible relationship may spell in such a way that first-hand experience of a passenger towards the rail service is heavily dependent on the service quality received, coupled with how the person perceive a "good service" would be psychologically which would also be influenced by the background (diversities) factors of the individual.

2.3.2 Relationship between service quality and passengers' satisfaction of urban rail transit

By now, plenty of studies have stated service quality has significant positive outcome on the passenger's satisfaction for urban rail transit. Recent studies, Irtema, Ismail, Borhan, Das and Alshetwi (2018), theoretically, the researchers had conducted the research to observe relationship between service quality and satisfaction on urban rail transit. A survey was managed on 412 answerer, accomplished in the KL Sentral over a period of two months in 2016. Structural equation modelling (SEM) was used to explain relationship among variables while hypothesized casual effects was conducted to test significant level among variables. Thus, service quality and satisfaction showed a positive and significant connection,

which means service quality increase will rise the user's satisfaction of urban rail transit.

In addition, the researcher, Rozmi Ismail et al. (2012) also did the survey to describe the user's satisfaction towards service quality for KTM and LRT. The respondents of 312 users were joined the survey which implemented at Kuala Lumpur and Selangor. The analysis of variance (ANOVA) utilized to examine level of significant as well as the relationship of dependent and independent variables. The result showed optimistic and substantial relation between service quality and the satisfaction of user for KTM and LRT.

The study of Pucher and Korattyswaroopam (2004) have further support and backed up that, there is optimistic relation between service quality and consumer gratification for urban rail transit. Research examine the long period of data collected from 1950 to 2001, and it showed that the total number of private vehicles especially the low-cost motorized two-wheelers rises four times faster than the public transport growth. This proofs that the insufficient and terrible service quality of rail transit led to lose of customer's usage because of the dissatisfied rail transit passengers. So, the poor service quality will decrease the satisfaction of users and so reduce the quantity of passengers.

To sum up, positively correlated and significant relationship of service quality towards user's satisfaction of urban rail transits. From these three researches alone, all their results have yielded the same outcome for their tests, by using ANOVA test, SEM test and multiple regression analysis (Rozmi Ismail et al., 2012; Irtema et al., 2018; Pucher and Korattyswaroopam, 2004). The improving of service quality level will enlarge the passengers' satisfaction of urban rail transit. On the other hand, if a rail transit with bad service quality level provided will decrease customer's satisfaction, all together increase number of private transport in the area. From the studies, we expect to get the positive correlation and

significant correlation between service quality and passengers' satisfaction on rail transit provision.

2.3.3 Relationship between facilities and passengers' satisfaction of urban rail transit

The relationship between facilities and the satisfaction of urban rail transit has been previously studied in few researchers. First and foremost, according to Rozmi Ismail et al. (2012) had directed the research to estimate relationship between facilities and the satisfaction for KTM and LRT network. The 312 respondents who have the experiences of using public transportation voluntarily participated survey through a self- questionnaire of this study in Kuala Lumpur and Selangor, Malaysia. Analysis of variance (ANOVA) used to explain relationship of facilities and the satisfaction of users for KTM and LRT network of the survey. Therefore, the summary of analysis showed facilities has a substantial and optimistic correlation with variable satisfaction of urban rail transit.

Furthermore, Amsori Muhammad Das et al. (2013) investigated the relationship of facilities factor towards passenger's satisfaction for monorail in Kuala Lumpur. Researchers applied Microsoft Excel and SPSS program 13 to investigate reliability and validity regarded to data composed from face-to-face interviews survey questions. The total of 400 respondents' answers were collected at the KL Monorail in Kuala Lumpur. Then, the researchers performed the method of Importance Performance Analysis (IPA) to examine the relationship between facilities and satisfaction of KL Monorail system. From the model, researchers found out that facilities is a very crucial factor that influence passenger's satisfaction on using KL monorail system. This factor has priority to be improved for achieving customer's satisfaction and continue to maintain using rail transit. Thus substantial positive relationship between facilities and satisfaction of users on using rail transit.

Conclusively, all of the studies we referred to showing positive relationship between facilities factor and user's satisfaction on using rail transit, most of it explain this situation as the facilities level increase will raise the satisfaction of passengers and their loyalty. After study the research, we are convinced that our expected result will also yield a positively correlated and significant relationship on the passengers' satisfaction on using rail transit.

2.3.4 Relationship between diversity and passengers' satisfaction of urban rail transit

First of all, demographic of a passenger is a significant aspect that influence passenger satisfaction level on choosing to use rail transit. Most of the previous studies claimed that different age range, gender, having car ownership, family size and salary range could affect an individual's choice of transportation. Thus, there has been an increasing interest of researchers for their research on this factor.

According to Jayaraman, Choong and Soh (2011) compared their study with five different factor of social demographic in order to estimate the relation with the satisfaction of passengers on using rail transit. The five social demographic factors which involve gender, age range, monthly income, ownership of own transport as well as the condition of commuter or non-commuter. These survey approach such as online survey and face-to-face interview were implemented at Rapid Penang Weld Quay during the period of 9 March until 25 March in 2010, there were total of 302 responses completed the survey. The outcome illustrates that people who did not own a car and do not have behaviour on using rail transit is tending to use rail transportation in the future. A private car user normally dislike public transport as car is outperforming that public transit and also car acts as a sign of freedom and enjoyable of driving. Besides, the answerers with monthly salary of less than one thousand US dollar be apt to satisfy on using

communal transit. Nurdden, Rahmat and Ismail (2007) who claimed that the demand for public transit is affected by a people's income and the ownership of private car support this finding. In addition, respondents' age with either less than twenty-six years or older than forty years were the most potential users on applying public transit. From the study, shows that adulthoods choose to take rail transit are due to the higher related cost on purchasing a personal vehicle, while the reasons for middle to old-age respondents on taking public transportation are convenient and timesaving from avoiding the large scale of traffic congestion. In contrast, respondents who aged between twenty-six until forty years replied that they are able to afford for private car and so they prevent on using rail transportation for journey. Lastly, sexual is not the significant determinants that effect on using the service of rail transit.

As a conclusion, diversity demographic of a passenger will influence his or her demand on using public rail transit service. If a passenger with high usage on utilizing rail transit can be meant as rail transit service is able to fulfil his or her satisfaction. The utilization rate is affected by the satisfaction level of a user.

2.3.5 Relationship between safety and passengers' satisfaction of urban rail transit

Past researches have confirmed relationship between safety and user's satisfaction of urban rail transit. First, based on the research of Ghosh, Ojha and Geetika (2017), researchers had carried out the study of safety towards passenger's satisfaction of urban rail transit. There were 1243 surveyors completed the survey of this study. The survey was conducted to achieve the research goal at Kanpur Central Station under the Allahabad Division of North Central Railway. MRA has utilized the construct of model for passenger satisfaction. Thus, a positive relationship towards overall user's satisfaction has been proved through regression analysis. However,

Ghosh, Ojha and Geetika (2017) also noted that the significance is proved at the cost of the distinction from two of the lesser impactful variables thus the significance might be proved otherwise should another more convincing variable were introduced.

Moreover, Amsori Muhammad Das et al. (2013) were testing relation of security degree on passenger's satisfaction for monorail in Kuala Lumpur. The data collected by researchers through distributing survey questions to 400 respondents at the KL Monorail in Kuala Lumpur. Excel and SPSS program Microsoft13 were used to test the validity and reliability. Besides, this research was using Importance Performance Analysis (IPA). Researchers found that security is an extra contributing influence for passengers' satisfaction on using KL monorail. Kamaruddin et al. (2012) also examined the relationship of safety towards satisfaction. They surveyed 63 public transport users who around Klang Valley. Explanatory factor analysis (EFA) and confirmatory factor analysis (CFA) were achieved to measure models in terms of satisfaction. The results showed optimistic and substantial relationship between safety and satisfaction level on using rail transit.

Finally, Jayaraman, Choong and Soh (2011) also observed the relationship between safety and satisfaction on using rail transit. The researchers of this study used survey approach, includes online survey and individual designed interview at Rapid Penang Weld Quay were conducted from 9 March until 25 March 2010, and 302 responses achieved. This research engaged cross-sectional research with the combination of multi-methods in data congregation. Unfortunately, their research were unable to determine if safety can influence the passengers' satisfaction on utilization of rail transit.

Conclusion, some of the studies has shown an optimistic, substantial relationship between safety and passenger's satisfaction towards improving the satisfaction level of rail transit passengers. There are some reviews

telling that they meant tourists would desire and maintain the demand on rail transit. However, some of the research were unable prove such relationship while some are tested but silent between the relationship of these two. It is true to say this as if tourists are getting more protection. The higher demand on rail transit will create a positive cycle and boost the economic even better. In our opinion, the relationship between passengers' satisfaction levels and safety would be less significant as some of the researches failed to stress on the impact of safety. Many research could merely express the perception of safety would contribute towards passengers' satisfaction level towards rail transit services, however such hypothesis still lacks concrete evidence to support otherwise.

2.3.6 Relationship between psychology and passengers' satisfaction of urban rail transit

A number of arguments have been put forward to explain the relationship between psychology and the satisfaction of urban rail transit. According to Clifton and Handy (2011), apart from the form of quantitative studies, qualitative approaches also required to be utilized in order for investigating the travel behaviour of a passenger. A qualitative approach suggest a limitless possibility for transportation investigations, they should not be taken as a replacement to quantitative ways; rather it is an extension to aid explaining the psychological and social element which able to alter someone's travel feature. Qualitative research tends to a method that regarded to someone's experience, perception, behaviour and attitudes affect their satisfaction.

Based on the recent study of Borhan, Ibrahim, Syamsunur and Rahmat (2019), the researchers had inspected the relation between someone's psychological towards the satisfaction on using rail transit. A total of 29 respondents who aged 21 to 51 years old were invited to attend the interview in Putrajaya. The findings showed most of the people were not

be satisfied on using public transportation and so turn into private car users. According to the experiences of public transport users, they mentioned they felt more comfort when driving a car compare to taking public transport because of the erratic bus schedule and the crowded factor in a public transport. Furthermore, they are lack of the feeling of security regarded when they arrived at their desired destination because of long travel time due to frequent stops. Moreover, one has the perception that by taking a public transportation is not suitable and quite difficulty to bring too much of goods, so using private car is more convenience for them to carry large quantity of things from a place to another. Last, some respondents are more attracted to private vehicle than public transport as they have a concept in terms of uncertain whether condition. Therefore, a person's psychological factors will change his personal satisfaction with public transportation.

Attitude is also types of psychological benchmarks which can influence passenger's satisfaction. Shaharudin, Zainoddin, Akbar, Abdullah, and Saifullah (2018) also examined the relation of psychological and satisfaction on using rail transit. The primary data was obtained through self-administered questionnaires which distributed randomly for the passengers of LRT at the Masjid Jamek station, Kinrara BK5 station as well as Ampang station in Klang Valley, Malaysia. There are 379 respondents answered the surveys completely. The measurement model and structured model has been adopted for analysing the convergent validity, composite reliability as well as average variance extracted. Then, the bootstrapping method also has been adopted for determining the significant level of path coefficients, weights and loadings whereas the blindfolding approach has been used to assess the model fit. As a result, the researchers find that it is positive and significant influence of psychology towards satisfaction on using rail transit. The problem with crowds in a public transport will affect someone's physical comfort but also psychological trouble such as stress, nervous, anxiety and feelings of a person's breach of comfort zone. This is because most people are concerned about comfort and self-privacy issue, so a person satisfaction will drop if he is not comfortable to travel in coaches.

Therefore, if one travels under a comfortable condition, travel in rail transit definitely affects the psychological of consumers in order for them to increase satisfaction.

Conclusion, psychological is one of the determinants that can give effect to consumer's satisfaction on using rail transit. The findings showed that psychological fulfilment would boost the satisfaction on using rail transit and so increase the usage of rail transit. From the previous studies, we have discovered that a positive psychological perception and understanding within a passengers' travel experience will promote higher level of satisfaction. The relationship between these two are significantly positive, thus we anticipate that the having good perception and experience while travelling in rail transit undoubtedly contributes to the passengers' satisfaction level for rail transit services.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter enlighten the methodological tools that function to information gathering and analysis. The proper methodology is important to execute the study because the methodological tools are able to affect the precision of result that fit the findings. Specifically, research design, data collection method, sampling design and research instrument, clarification and validation on the study technique, depiction on data assemble development and regulate the target contributors was covered in this chapter.

3.1 Research Design

3.1.1 Quantitative Research

Quantitative research approach is focuses on objective measurements, mathematical, statistical and numerical analysis of data composed by questionnaire, surveys, telephone interview, and face-to-face interviews or concluded deploying pre-existing numerical data utilizing computational techniques (William, 2007).

3.1.2 Comparative Research

In the study, the casual comparative research has used. The function of Casual comparative research is examining the correlation of independent variable affect the dependent variable (William, 2007). In this study, dependent variable (DV) and independent variable (IV) are,

DV: Passenger's Satisfaction towards Urban Rail Transit

IV: 1. Service Quality

IV: 2. Facilities

IV: 3. Safety

IV: 4. Diversities

IV: 5. Psychological Profile

The purpose of supervising casual comparative research is to observe the dominant of the service quality, facilities, safety, diversities and psychological profile towards the satisfaction of the passengers. Environment of study is the background of the study. Natural circumstantial will be conducted in this study as survey technique with questionnaire tool will be conducted to gather statistics, and will allocate unsystematically regarding the targeted population.

3.2 Data Collection Method

3.2.1 Primary Data

Primary data refers to the collection of the data via information gathered from the targeted answerers. The targeted respondents are the residents who staying at Cheras, Petaling Jaya and Subang Jaya as well as using the rail transit. This survey is conducted in the station mainly located in these three area. As by Stephanie (2018), primary data mainly consists of the first-hand sources gathered by researcher, like surveys, interviews, questionnaire or experiments are the methods that primary data go through. Primary data is collected with the research project in mind; it is directly from primary sources. This study ought to choose primary data because it is suitable and relatable to the research. Thus, the results acquired will be adequately consistent and related.

For the data collection method of this research, researchers will distribute twenty per cent of hardcopy survey forms and the rest will be conducted by using online survey forms with Google Survey link. With online survey forms, researchers set strict form-filling requirements to avoid incomplete survey results being collected and included in the latent calculations. In addition, these researchers will check to ensure each hard copy forms are filled to avoid mistranslations and unviable data. In this research, targeted areas are the MRT, LRT and KTM stations in Cheras, Petaling Jaya and Subang Jaya.

3.3 Sampling Design

3.3.1 Target Population

In the research, targeted respondents are passengers or residents in Cheras, Petaling Jaya and Subang Jaya, aged from 16 to 65 years old and above. To define the accurate sample size, simplified formula from Yamanae has used in this research (Yamane, 1967).

Table 3.1 Resident Enrolment at the years 2019

CITIES	**NUMBER OF RESIDENT**
Cheras	484,658*
Petaling Jaya	520,698
Subang Jaya	708,296
TOTAL	**1,713,652**

Source: Adopted from the Department of Statistic Malaysia, 2020

Note: *Estimation from 1/3 of Kuala Lumpur Population, 2019

From Yamanae's abbreviate formulation, n equal to sample size, N equal to population size.

$$n = \frac{N}{1 + N(e)^2}$$

To dedicate the formulation introduced by Yamanae, expected 95% confidence level has been used in this research, P-value=0.05, N=1,713,652 with ±5% correctness, computation as follows:

$$n = \frac{1{,}713{,}652}{1 + 1{,}713{,}652(0.05)^2}$$

$$n = 399.907$$

Hence, 400 of respondents among the residents was chosen for fill up the questionnaire.

In this study, simple random possibility method will be used. We targeting respondents from three area without setting an assured target for each area.

3.4 Design of Questionnaire

To accomplish the research goals, a survey technique is used. Uses of questionnaire is able to obtain a reliable and consistent result (Milne, n.d.). In order to get a consistent result, the fix option is given to answerers, therefore the result is foreseeable as no request from answerers' own view. In addition, investigator can convey and compose the questionnaire in a

short time by aiming for grander group of answerers. From the research objective and question, 41 inquiries are formed.

In order to sustain a restricted set of possible answer, closed-ended form are the most suitable ways to convey. The two format of questionnaire is formed based on the approach of nominal scaling and ordinal scaling. Labelled and optioned question are designed as the nominal scale. For ordinal scale, respondents are based on the level of agreement, such as satisfaction level as in non-numeric method. 5-point Likert-scale is the method used in questionnaire as Likert-scale is a non-comparative scaling method and able to measure a sole variable (Bertram, n. d.). Answerers able to respond their satisfaction from the statement. Likert-scale is useful due to it can generate a greatly dependable balance and deliver possibility for answerers to respond. The answerers are necessary to plot their degree of acceptance to the sentences.

In questionnaire,

First ten questions are used the nominal scaling.

Thirty-one questions used Likert-scaling pattern (1) symbolize Strongly Disagree (2) symbolize Disagree (3) symbolize Neither Agree or Disagree (4) symbolize Agree and (5) symbolize Strongly Agree.

In this questionnaire, total three parts considered. Details of respondents is the first part of questionnaires. Following up by Section A, Section B and Section C.

Section A included 10 questions, personal details such as gender, age, race, nationality, occupation and so on.

Section B included 5 questions, to examine the satisfaction towards urban rail transit (Dependent Variable).

Section C included 26 questions, to study the service quality, facilities, safety, diversities and psychological profile (Independent Variables).

3.5 Pilot Test and Result

Pilot test is an instrument of collecting the compulsory information for the study correctly with the minimum possible mistake in order to make the outcomes that are logic and credible (Sapsford & Jupp, 2006). Data collection approaches categorised as primary and secondary methods to answer the research problem, hypothesis testing and lastly estimate the outcome of this research. In the study, primary data is our main source of the research. Primary data is a fresh or first-hand data that are questionnaires, interviews or observation in order to evaluate the outcomes related to the research. The questionnaire is use as data collection tools in this research.

Pilot test is conduct before the authentic survey. Determination of pilot test clarify whether the researchers will receive an expected respond from the respondents. The main target of this progression is to make an estimation of validity and reliability of items for each of the measurements, and it is use for validity and reliability check to decrease the number of items per measurements (Vaziri & Mohsenzadeh, 2012). However, there will be 30 qualified respondents will be chosen to conduct the test to access the face validity from the questions. The qualified respondents are of those who used rail transit services before and those who constantly travel or stayed in Cheras, Petaling Jaya and Subang Jaya.

After conducting, the pilot test and ensuring that any insufficient need to be correct. The initial 30 respondents did not provide any feedback or questions regarding the survey questions. However, they did provide this research with the potential area which the rail transit company needs to improve on as well as the circumstantial issues regarding the nature of the transportation. The survey questionnaires are to be disseminated to the target answerers by hand, collected

from and checked for respondents immediately after finished filling in. An estimate of 400 sets of surveys will be distributes to target answerers and it is for further evaluated, checked and verified before counting them into the actual evaluation counts. Since the pilot test carried out through online survey form, the researchers would improve the collection method by stationing themselves around the said area with rail transit stations. In addition, researchers were tasked to collect response on peak and non-peak hours, weekdays, and weekends and during holidays to ensure randomness in data collection. Researchers would also attempt to approach equally on different age groups due to higher feedback from younger respondents in the pilot test.

3.6 Data Analysis

3.6.1 Descriptive Analysis

According to Zikmund (2003), the descriptive analysis refers to transformed raw statistics into form of data which are able to be understood and interpreted, rearranged, ordered, and manipulated easily and helpful in generating descriptive information. Through samples, descriptive analysis able to analyse and describe the characteristics of the population. For example, frequency distribution, percentile distribution and calculating of the mean are the several ways that able to examine the data collected. The following chapter, frequency distribution and percentage distribution is used to analyse the data and will be shown.

3.6.2 Scale Measurement

3.6.2.1 Reliability Test

Reliability relates the scope to which a measurement of an incident provides stable and consist result (Carmines & Zeller, 1979). The main objective of conducting reliability test is examining stability and consistency of data research. A dependable, repeatable, and consistent information about people usually need a reliable evaluation tools to produce. In order to get interpretation of the data research stability, a reliable tool was needed. Reliability test brings us to the next principle of assessment.

3.6.2.2 Validity Test

Validity brings out how well a test is measured and what is claimed to examine. The validity test is compulsory, as the reliability alone is insufficient. In order for test to be reliable, it also requires validity. In the study, face validity test is the meaning of measure by referring to the "surface" of study.

3.6.3 Inferential Analysis

3.6.3.1 Bivariate (Pearson) Correlation Coefficient

The Bivariate correlation coefficient as well as Bivariate product-moment correlation coefficient is a computation of firmness of a linear connection between independent variables and dependent variable. It is symbolized by r. essentially, a Bivariate correlation coefficient effort to

illustrate a line of best fit. Besides, Bivariate correlation coefficient, r, entitles how data points are faraway to line of best fit.

Table 3.2: Interpretation of Correlation Coefficient

Correlation Coefficient Range	Strength of Association
±0.90-±1.00	Very Strong Correlation
±0.70-±0.89	Strong Correlation
±0.40-±0.69	Moderate Correlation
±0.11-±0.39	Weak Correlation
±0.00-±0.10	Negligible Correlation

Source: Adopted from Schober, Boer, and Schwarte, 2018

3.6.3.2 Multiple Linear Regression Analysis

From this model, $Y = a + \beta1 \times x1 + \beta2 \times x2 + \ldots + \beta n \times xn$ namely Multiple Regression Analysis, as DV is defined as a linear function of IV, Xi, (Schneider, Hommel, & Blettner, 2010). For example, the involvement of a sole IV does not alone suit to clarify the DV in several situation. MRA are the method that able to examine the consequence of multiple variables on the DV if this happened. In short, MRA are able to investigate effect between two or additional numerical IV towards the DV. Hence, the model in this research can be represented as:

Equation 1

$y = \alpha0 + \beta1\ x1 + \beta2\ x2 + \beta3\ x3 + \beta3\ x3 + \beta4\ x4 + \beta5\ x5$

Where:

y = Passengers' Satisfaction on Rail Transit Services in Cheras, Petaling Jaya and Subang Jaya

$\alpha0$ = Constant

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5,$ = Coefficients to respective factors (x)

X1 = Service Quality (SQ)

X2 = Safety (S)

X3 = Facilities (F)

X4 = Diversities (D)

X5 = Psychological Profile (PP)

Chapter 4: FINDINGS AND ANALYSIS

4.0 Introduction

This chapter will analyse data collected from survey questionnaire. 283 sets of questionnaire with 41 question are distributed. This research aimed to distribute 400 set of survey but due to the limitation of research, the survey was not able to reach the estimate amount of feedbacks. The respondent rate of the survey is 70.75 per cent, which is 283 sets over 400 sets. SPSS (statistical Package for the Social Science) is an analytical tool to analyse and interpret data. The data analytic starts with descriptive statistic for 31 questions, respectively in Section A, B and C. Following by the Reliability test, Validity test, Bivariate (Pearson) Correlation Analysis, Hypothesis testing and lastly is multiple linear regression. At the end of the chapter, a brief summary of the result will be presented in the subsequent sections.

4.1 Descriptive Statistic

4.1.1 Demographic information of respondents

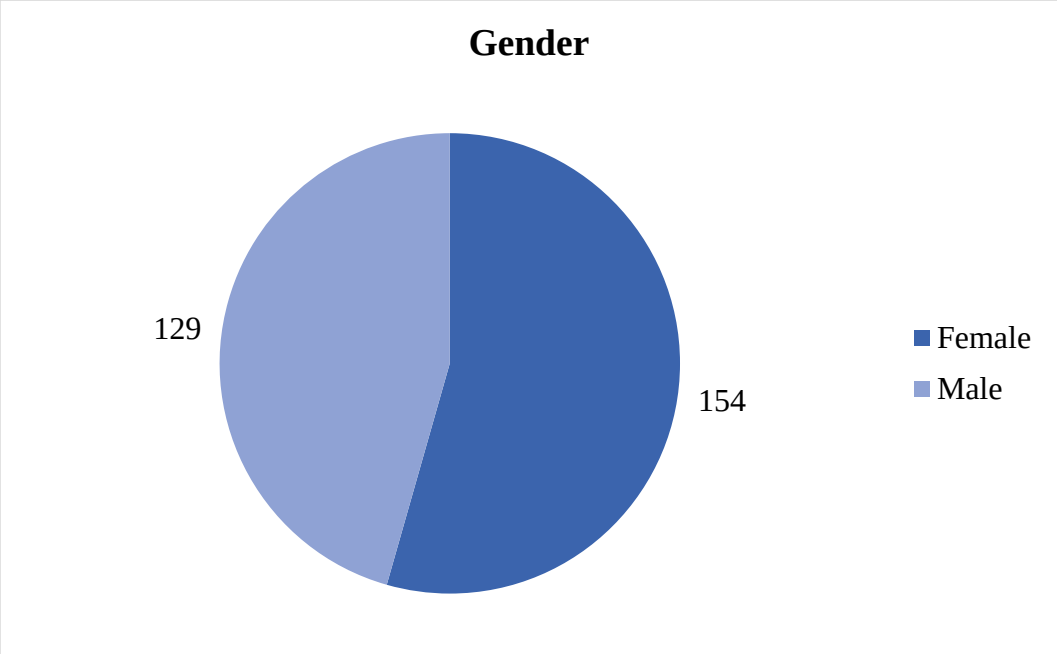
Q1 – Gender

Table 4.1: Gender of Respondents

	Percent	Count
Male	45.58%	129
Female	54.42%	154
Total	**100%**	**283**

Source: Author's own calculation

Figure 4.1: Gender of Respondents



Source: Author's own Derivation

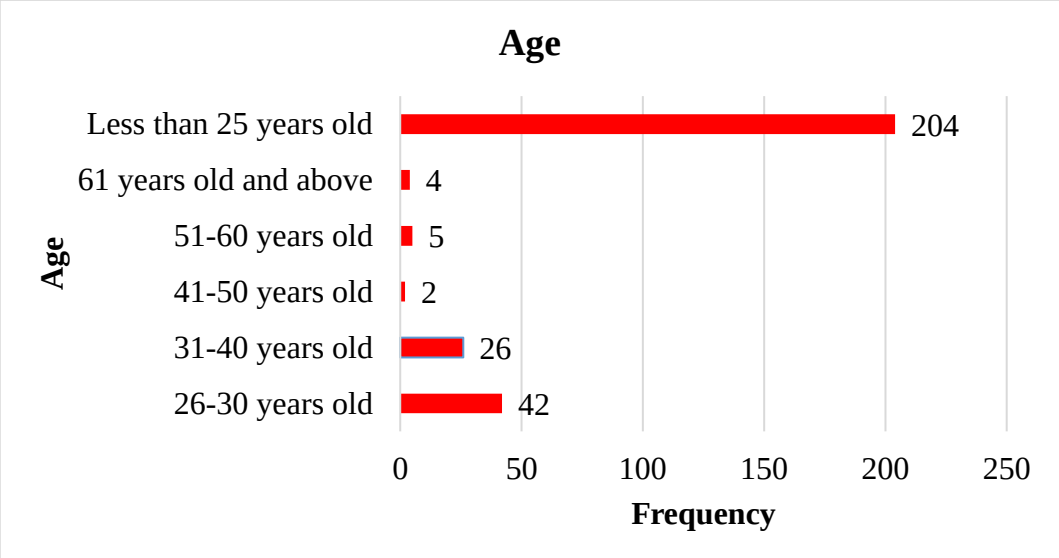
Q2– Age

Table 4.2: Age of Respondents

	Percent	Frequency
Less than 25 years old	72.08%	204
26-30 years old	14.84%	42
31-40 years old	9.19%	26
41-50 years old	0.71%	2
51-60 years old	1.77%	5
61 years old and above	1.41%	4
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.2: Age of Respondents



Source: Author's own Derivation

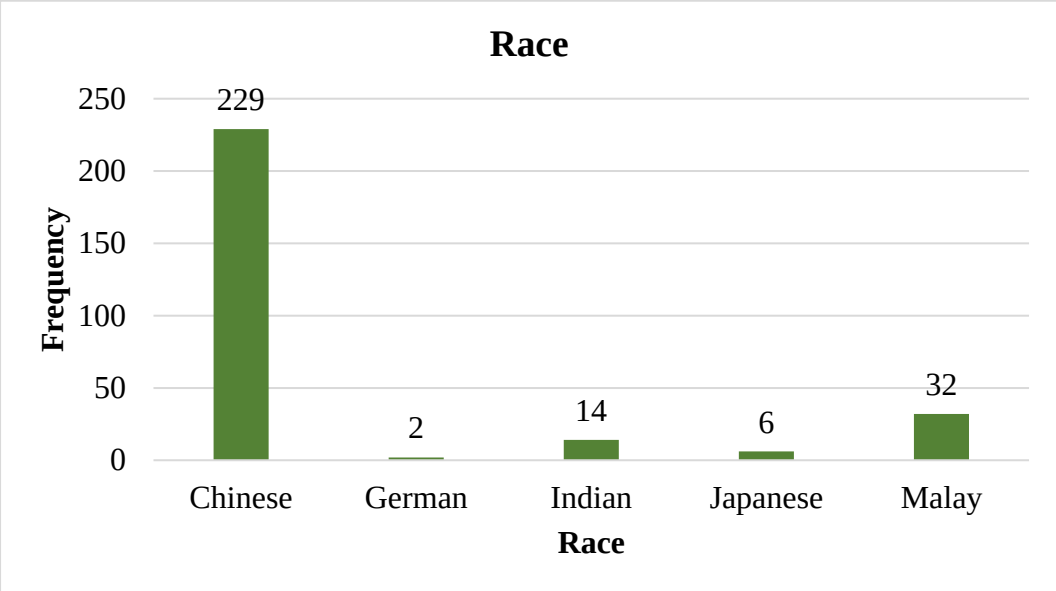
Q3– Race

Table 4.3: Race of Respondents

	Percent	Frequency
Malay	11.31%	32
Chinese	80.92%	229
Indian	4.95%	14
Others	2.82%	8
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.3: Race of Respondents



Source: Author's own Derivation

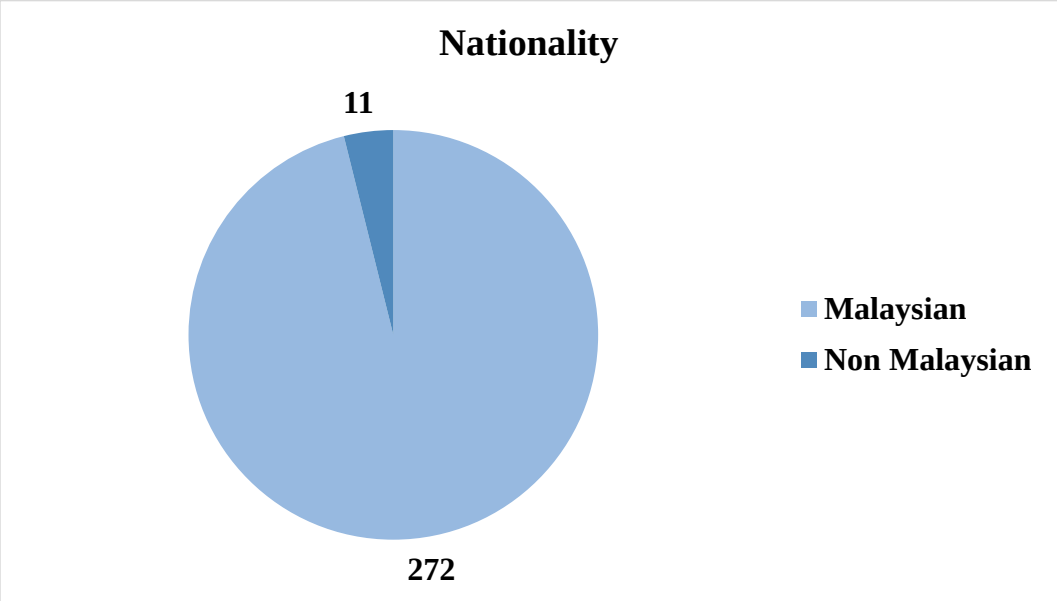
Q4– Nationality

Table 4.4: Nationality of Respondents

	Percent	Count
Malaysian	96.11%	272
Non Malaysian	3.89%	11
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.4: Nationality of Respondents



Source: Author's own Derivation

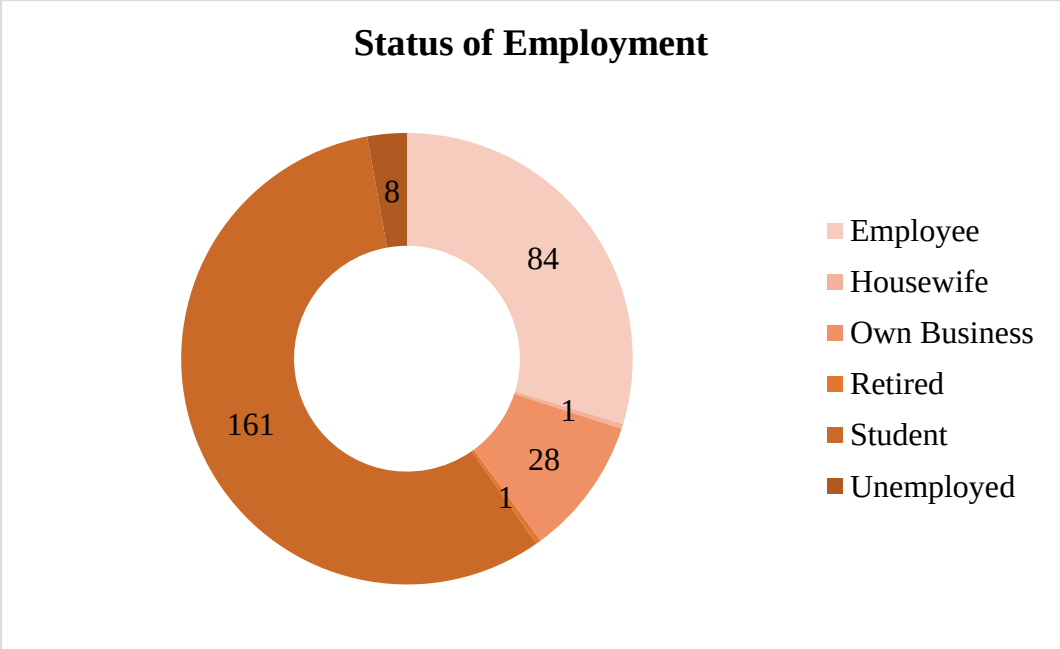
Q5– State of Employment

Table 4.5: State of Employment of Respondents

	Percent	Frequency
Student	56.89%	161
Employee	29.68%	84
Housewife	0.35%	1
Own Business	9.89%	28
Retired	0.35%	1
Unemployed	2.84%	8
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.5: State of Employment of Respondents



Source: Author's own Derivation

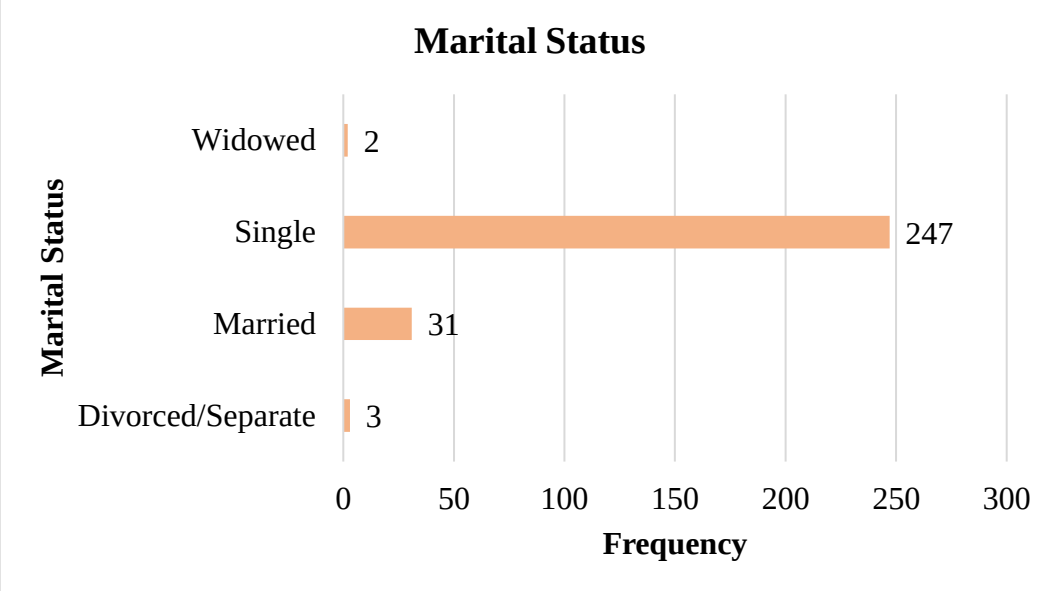
Q6– Marital Status

Table 4.6: Marital Status of Respondents

	Percent	Frequency
Single	87.28%	247
Married	10.95%	31
Divorced/Separate	1.06%	3
Widowed	0.71%	2
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.6: Marital Status of Respondents



Source: Author's own Derivation

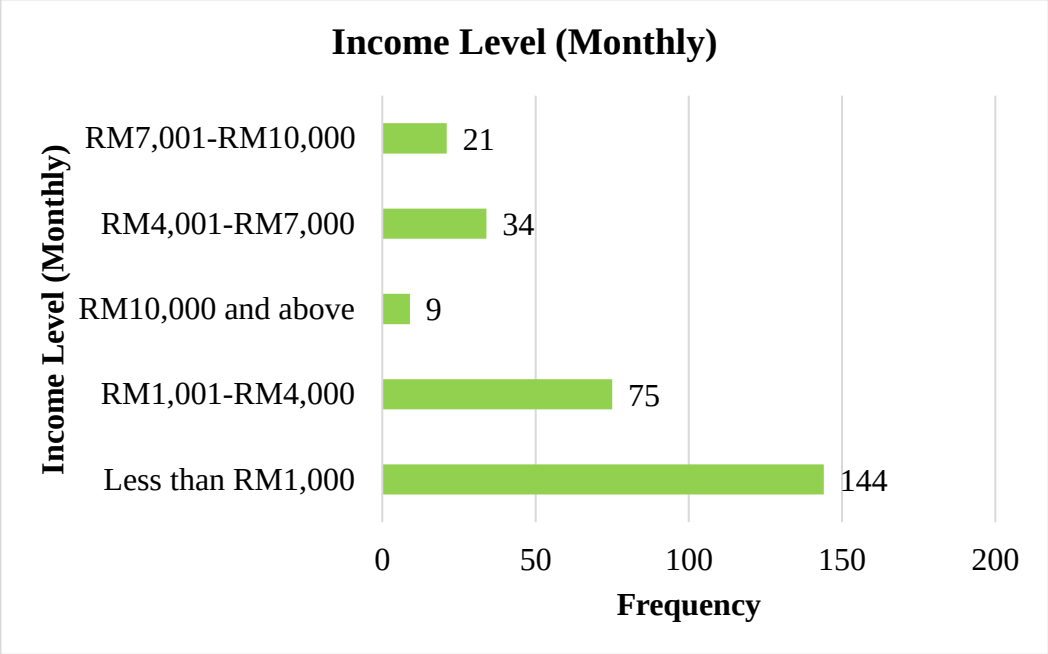
Q7– Income Level (Monthly)

Table 4.7: Income Level of Respondents

	Percent	Frequency
Less than RM1,000	50.88%	144
RM1,001-RM4,000	26.50%	75
RM4,001-RM7,000	12.01%	34
RM7,000-RM10,000	7.42%	21
RM10,000 and above	3.18%	9
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.7: Income Level of Respondents



Source: Author's own Derivation

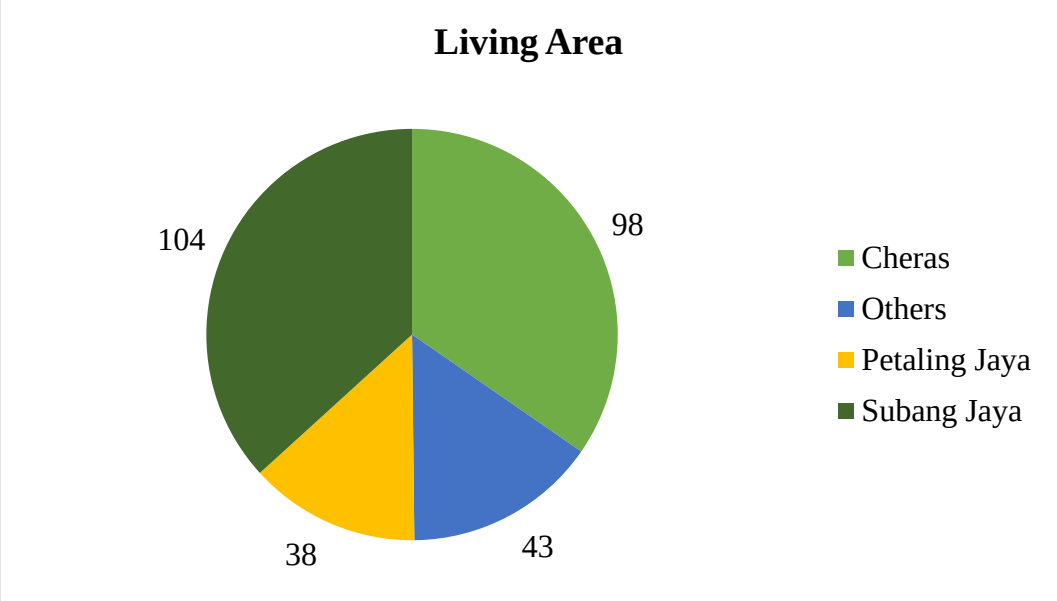
Q8– Living Area

Table 4.8: Living Area of Respondents

	Percent	Frequency
Cheras	34.63%	98
Petaling Jaya	13.43%	38
Subang Jaya	36.75%	104
Others	15.19%	43
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.8: Living Area of Respondents



Source: Author's own Derivation

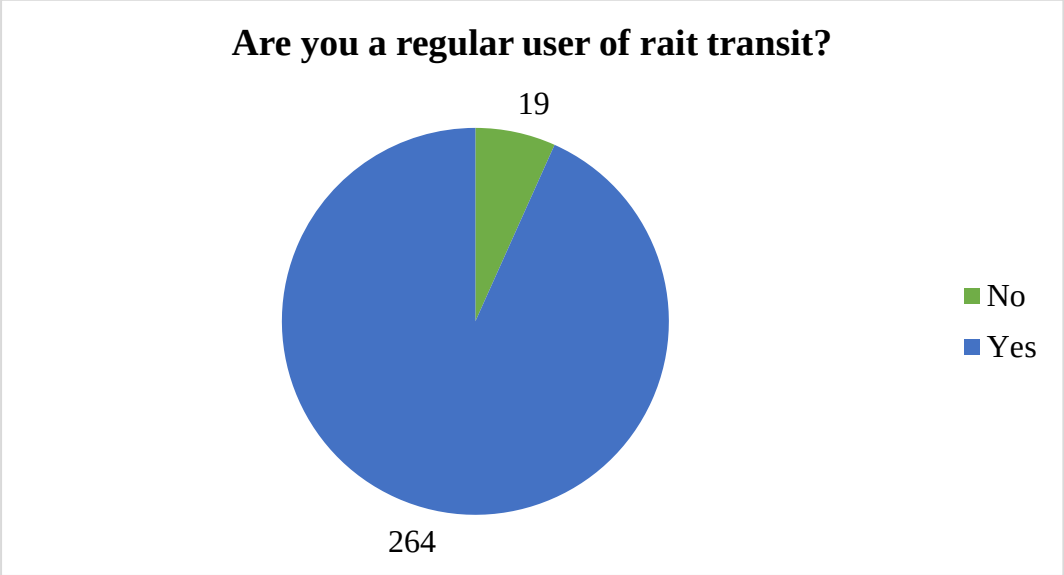
Q9– Are you a regularly user of rail transit service?

Table 4.9: Regular User of Rail Transit

	Percent	Count
Yes	93.29%	264
No	6.71%	19
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.9: Regular User of Rail Transit



Source: Author's own Derivation

Multiple choice is used to study whether respondents regularly used rail transit. Two choices were given. Out from 283 respondents, 93.29 per cent of respondents regularly take the rail transit. While another 6.71 per cent of respondents chose "No", knowing that this group of people is not regularly take the rail transit.

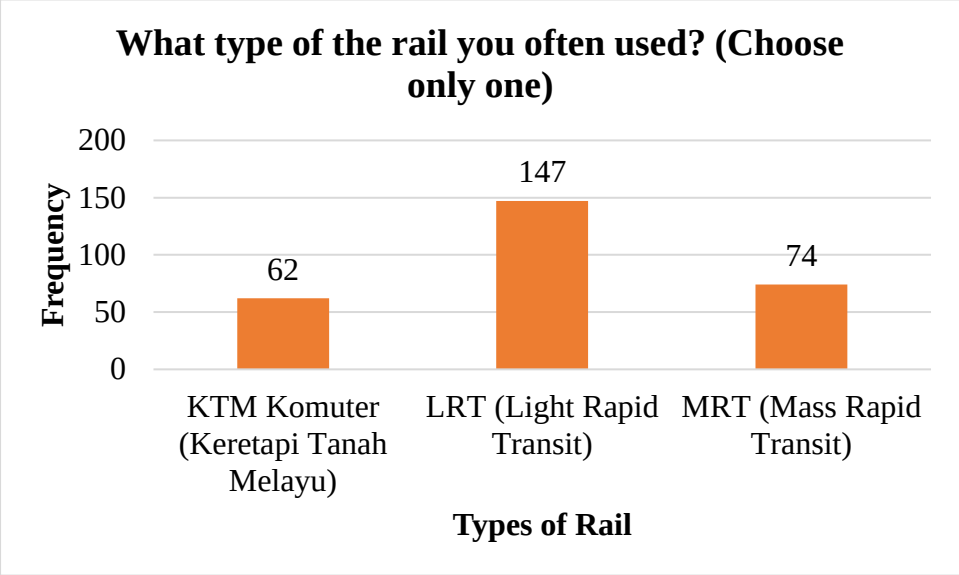
Q10– What type of the rail transit do you often used?

Table 4.10: Types of Rail Transit

	Percent	Frequency
KTM Komuter (Keretapi Tanah Melayu)	21.91%	62
LRT (Light Rapid Transit)	51.94%	147
MRT (Mass Rapid Transit)	26.15%	74
Total	**100%**	**283**

Source: Author's own Calculation

Figure 4.10: Types of Rail Transit



Source: Author's own Derivation

A multiple choice is used to study whether respondents taken what type of the rail transit. Three choices were given. Out from 283 respondents, majority of the respondent are taking LRT. Next, 26.15 per cent of respondents chose MRT and 21.91 per cent of respondents chose KTM.

4.1.2 Central Tendencies Measurement of Construct

4.1.2.1 Passengers' Satisfaction on Urban Rail Transit

Table 4.11: Central Tendencies Measurement of Satisfaction towards Urban Rail Transit

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
PS1	I satisfied with the overall services provided by rail transit.	283	3.48	0.994	2	5
PS2	I satisfied with the fare charge by rail transit.	283	3.08	1.272	4	2
PS3	I satisfied with the environment of the rail transit station.	283	3.49	1.012	1	4
PS4	I satisfied with the punctuality of time arrival of rails.	283	2.84	1.29	5	1
PS5	I satisfied with the cleanliness of the station and coaches.	283	3.29	1.14	3	3

Source: Author's own Calculation

From the Table 4.11, the utmost average score (mean) is the PS3 with the value of 3.49 and standard deviation 1.012. PS1 has second highest mean score of 3.48 and standard deviation of 0.994.Whereas PS5 has third highest of mean 3.29 and standard deviation of 1.14 as in compared to PS2 with the mean of score 3.08 and standard deviation of 1.272 respectively. PS4 has lowest mean score 2.84 and standard deviation of 1.29.

4.1.2.2 Service Quality (SQ)

Table 4.12: Central Tendencies Measurement of Service Quality

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SQ1	The operating hour is reasonable.	283	3.82	1.033	2	2
SQ2	I satisfied with the empathy of rail station staff.	283	3.12	1.08	5	3
SQ3	I satisfied with the customer services provided.	283	3.25	1.088	4	1
SQ4	I found the information counter is helpful and informative.	283	3.54	1.007	3	4
SQ5	The service provided like Touch' n go and self-service ticket vending machine are useful and convenience.	283	4.01	0.989	1	5

Source: Author's own Calculation

Based on Table 4.12, SQ5 has uppermost mean of 4.01 and standard deviation of 0.989, followed by SQ1 with the mean and standard deviation are 3.82 and 1.033 respectively. SQ4 has the third highest mean score of 3.54 and standard deviation of 1.007 as in compared to SQ3 with the mean of score 3.25 and standard

deviation of 1.088 respectively. SQ2 has lowest mean score of 3.12 and with standard deviation of 1.08.

4.1.2.3 Facilities (F)

Table 4.13: Central Tendencies Measurement of Facilities

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
F1	Management conduct proper maintenance of infrastructure frequently	283	3.05	1.173	5	1
F2	Facilities of the station are sufficient.	283	3.43	1.116	3	3
F3	The platform capacity is sufficient during peak hours.	283	3.2	1.171	4	2
F4	Facilities have disabled friendly features.	283	3.76	0.919	2	5
F5	Convenient to have user-friendly machine.	283	3.8	1.031	1	4

Source: Author's own Calculation

Table 4.13 shows the central tendencies measurement of facilities. From the results, F5 has highest mean score of 3.8 followed by F4 (3.76), F2 (3.43), F3 (3.20) and lastly F1 (3.05). For standard deviation, F1 has the uppermost standard deviation of 1.173 followed by F3 (1.171), F2 (1.116) F5 (1.031) and lastly F4 with lowermost standard deviation of 0.919.

4.1.2.4 Safety (S)

Table 4.14: Central Tendencies Measurement of Safety

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
S1	The environment of the station is safe.	283	3.09	1.165	5	2
S2	The situation are safe during commuting.	283	3.47	1.043	4	3
S3	I'm safe when waiting for the rail.	283	3.55	0.993	3	4
S4	I prefer security are patrolling.	283	4.07	0.924	1	5
S5	Gender base coaches are useful.	283	3.73	1.19	2	1

Source: Author's own Calculation

Table 4.14 reveals central tendencies measurement of safety. Base on the results, it stated that S4 has highest score of mean of 4.07 and standard deviation of 0.924. S5 has recorded as second highest mean of 3.73 and standard deviation of 1.19. While S3 has the third highest, mean of 3.55 and standard deviation of 0.993 followed by S2 with the fourth highest mean of 3.47 and standard deviation 1.043. Lastly, S1 attained the lowest mean score of 3.09 and standard deviation of 1.165.

4.1.2.5 Diversities (D)

Table 4.15: Central Tendencies Measurement of Diversities

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
D1	I am hard to get into coaches as the platform is too hustle during peak hour.	283	3.98	0.995	2	4
D2	I prefer fewer people environment of the station.	283	3.85	1.014	3	3
D3	I prefer rail transit than own transportation.	283	3.4	1.182	4	2
D4	Comfort at the rail station when peak hour.	283	2.74	1.201	5	1
D5	I prefer a comfortable distance with other passengers while entering the coaches.	283	4.04	0.969	1	5

Source: Author's own Calculation

Table 4.15 shows the central tendencies measurement of diversities. From the result, D5 has highest mean score of 4.04 followed by D1 (3.98), D2 (3.85), D3 (3.4) and lastly D4 (2.74). For standard deviation, D4 has utmost standard deviation of 1.201 followed by D3 (1.182), D2 (1.014) D1 (0.995) and lastly D5 with the lowermost standard deviation of 0.969.

4.1.2.6 Psychological Profile (PP)

Table 4.16: Central Tendencies Measurement of Psychological Profile

Question	Statement	Sample Size, N	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
PP1	I prefer using technology in rail transit.	283	3.94	0.955	4	4
PP2	I like to have coaches with the free sitting rather than fixed sitting.	283	3.28	1.322	6	1
PP3	I prefer quiet environment during commute.	283	4.1	0.892	3	5
PP4	I prefer softer audio during announcement.	283	3.65	1.109	5	2
PP5	I prefer shorter waiting period of time for each train.	283	4.31	0.86	1	6
PP6	I prefer that transit access nearby my housing area.	283	4.26	0.972	2	3

Source: Author's own Calculation

Table 4.16 stated results of central tendencies measurement for psychological profile. From the results shown, PP1 having utmost score mean of 4.31 and standard deviation of 0.86. PP6 is the second highest mean of 4.26 and standard deviation of 0.972. Whereas PP3 has third highest mean value of 4.1 and standard deviation of 0.892. For PP1, it has resulted the fourth highest mean of 3.94 and standard deviation of 0.955 followed by PP4 has fifth highest mean of 4.1 and standard deviation of 1.109. Lastly, PP2 attained the lowest mean of 3.28 and standard deviation of 1.322.

4.2 Scale Measurement

4.2.1 Reliability Test

Table 4.17: Range of Reliability and its Coefficient of Cronbach's Alpha.

No	Coefficient of Cronbach's Alpha	Reliability Level
1	More than 0.90	Excellent
2	0.80-0.89	Good
3	0.70-0.79	Acceptable
4	0.60-0.69	Questionable
5	0.50-0.59	Poor
6	Less than 0.50	Unacceptable

Source: Adopted from Mohd Arof, Syuhaida Ismail, and Abd Latif Saleh, 2018

According to the table 4.17 indicates the range of reliability and its coefficient of Cronbach's Alpha. Mohd Arof, Syuhaida Ismail, and Abd Latif Saleh (2018) claimed that if the coefficient of Cronbach's Alpha is over 0.90, the reliability level is excellent. If the Cronbach's Alpha is between 0.80 and 0.9, the reliability level is great. When Cronbach's Alpha range is between 0.70 to 0.79 and 0.60-0.69, the level of reliability will be acceptable and questionable respectively. However, if scale of coefficient of Cronbach's Alpha is below 0.59, reliability of the data is poor and unacceptable.

4.2.2 Reliability Statistics

Table 4.18: Reliability Result

Cronbach's Alpha	N of Items
0.875	31

Source: Author's own Calculation (SPSS)

Based on the reliability statistics, value of Cronbach's Alpha is 0.875 which is greater than 0.8. It can be concluded that the reliability level of the data is at good level and it is strongly reliability for the 31 questions.

4.3 Validity Test

Table 4.19 Validity Result

	N	Percent
Valid	283	100
Excluded	0	0
Total	**283**	**100.0**

Source: Author's own Calculation (SPSS)

Based on the validity test, the total of the questionnaire collected is 283 and all the responses are valid. There is neither invalid nor incomplete data has been collected.

4.3.1 Variables Statistic

Table 4.20: Variables Result

		Satisfaction	Service Quality	Facilities	Safety	Diversities	Psychological Profile
N	Valid	283	283	283	283	283	283
	Missing	0	0	0	0	0	0
Mean		3.2367	3.5505	3.4473	3.5823	3.6021	3.9229
Std. Deviation		.81078	.71763	.69007	.68113	.63212	.65552

Source: Author's own Calculation (SPSS)

Based on the variable statistic, psychological profile has obtained highest mean value, which is 3.9229, means most of the answerers are strongly agree that psychological profile can affect the satisfaction of using rail transits. In contrast, satisfaction has lowest mean value, which is 3.2367, indicates that most of the respondent have not satisfied on using rail transits.

4.4 Bivariate (Pearson) Correlation Test

Table 4.21: Pearson Correlation Result

Bayes Factor Inference on Pairwise Correlations

		PS	SQ	F	S	D	PP
PS	Pearson Correlation		.334	.432	.284	.166	.266
	Bayes Factor	.000	.000	.000	.000	.414	.001
	N	283	283	283	283	283	283
SQ	Pearson Correlation	.334	1	.607	.597	.456	.322
	Bayes Factor	.000		.000	.000	.000	.000
	N	283	283	283	283	283	283
F	Pearson Correlation	.432	.607	1	.585	.490	.396
	Bayes Factor	.000	.000		.000	.000	.000
	N	283	283	283	283	283	283
S	Pearson Correlation	.284	.597	.585	1	.404	.306
	Bayes Factor	.000	.000	.000		.000	.000
	N	283	283	283	283	283	283
D	Pearson Correlation	.166	.456	.490	.404	1	.469
	Bayes Factor	.414	.000	.000	.000		.000

	N	283	283	283	283	283	283
PP	Pearson Correlation	.266	.322	.396	.306	.469	1
	Bayes Factor	.001	.000	.000	.000	.000	
	N	283	283	283	283	283	283

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

Source: Author's own Calculation (SPSS)

4.4.1 Pearson Correlation

According to the Pearson Correlation Table from Zaiontz (n.d.), stated that the critical value of the two-tail test for 300 quantities with alpha equal to 5% is 0.112891. It the other words, if the Pearson Correlation result is higher than the critical value, there will have correlation between DV and IV. Based on Pearson Correlation test, the overall Pearson Correlation result is greater than 0.112891. It can be determined that correlational relationship happened between all IV and DV.

Facilities has highest positive correlational relationship with user's satisfaction on rail transits in Cheras, Subang Jaya and Petaling Jaya, which is 0.432. Second, positive correlational relationship between service quality and satisfaction of passengers in urban areas towards rail transport is 0.334. In addition, continues with safety and psychological profile that are 0.284 and 0.266 respectively. Safety and psychological profile also has positive relationship with the satisfaction of passengers of rail transits. Last, diversities has a lowest but positive correlation relationship with user's satisfaction in urban areas towards rail transits, which is 0.166.

From the result of Pearson Correlation test, independent variables such as service quality, facilities, safety and psychological profile is positive and significant to the passenger's satisfaction towards rail transits in Cheras, Subang Jaya and Petaling Jaya. This is because their Bayes factor is lower than the alpha = 0.05, probability of service quality, facilities and safety (0.00) < 0.05 and probability of

psychological profile (0.001) < alpha = 0.05. This statement is similar to previous study in Chapter 2 Literature Review, authors includes Irtema, Ismail, Borhan, Das and Alshetwi (2018), Rozmi Ismail et al. (2012), Pucher and Korattyswaroopam (2004), Amsori Muhammad Das et al. (2013), Ghosh, Ojha and Geetika (2017), Clifton and Handy (2011), Borhan, Ibrahim, Syamsunur and Rahmat (2019) as well as Shaharudin, Zainoddin, Akbar, Abdullah, and Saifullah (2018).

On the other hand, diversities is insignificant positive relationship to the user's satisfaction towards rail transit as probability of diversities (0.414) > 0.05. This relationship is opposite from the expected relationship in Literature Review. However, this statement is supported by the research of Idris, Habib and Shalaby (2014) who found that diversities is no significant but positive relationship towards user's satisfaction on urban rail transit. The diversities includes crowding level, income level, and number of cars in the house. This is because diversities is a human-based behaviour factor. The diversities is different from all people. For instance, people with higher income may more likely to take rail transit while people with one car is not likely to take rail transit. Therefore, diversities is insignificantly positive relationship with passengers' satisfaction on urban rail transportation.

4.5 Hypothesis Testing

Hypothesis 1

The relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

Table 4.22: The Bayes Factor of Passengers' Satisfaction and Overall Usage of Urban Rail Transit

Dependent Variable	alpha	p-value
Passengers' Satisfaction	0.05	0.00

Source: Author's own Calculation (SPSS)

H_0: There is no significant relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya, Subang Jaya.

H_1: There is significant relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya, Subang Jaya.

Based on the Table 4.22, the Bayes factor of passengers' satisfaction and overall usage of urban rail transit is 0.00. The H_0 should be rejected because par value (0.00) lesser than alpha (0.05). In conclusion, there is significant relationship between passengers' satisfaction and overall usage of urban rail transit in Cheras, Petaling Jaya, Subang Jaya.

Hypothesis 2

The relationship between service quality and passengers' satisfaction on urban rail transit.

Table 4.23: The Bayes Factor of Service Quality towards Passengers' Satisfaction on Urban Rail Transit.

Independent Variable 1	alpha	p-value
Service Quality	0.05	0.00

Source: Author's own Calculation (SPSS)

H_0: There is no significant relationship between service quality and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between service quality and passengers' satisfaction on urban rail transit.

Based on the Table 4.23, the Bayes factor of service quality towards passengers' satisfaction on urban rail transit is 0.00. The H_0 should be rejected because par value (0.00) lesser than alpha (0.05). In conclusion, there is significant relationship between service quality and passengers' satisfaction on urban rail transit.

Hypothesis 3

The relationship between facilities and passengers' satisfaction on urban rail transit.

Table 4.24: The Bayes Factor of Facilities towards Passengers' Satisfaction on Urban Rail Transit.

Independent Variable 2	alpha	p-value
Facilities	0.05	0.00

Source: Author's own Calculation (SPSS)

H_0 : There is no significant relationship between facilities and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between facilities and passengers' satisfaction on urban rail transit.

Based on the Table 4.24, the Bayes factor of facilities towards passengers' satisfaction on urban rail transit is 0.00. The H_0 should be rejected because par value (0.00) lesser than alpha (0.05). In conclusion, there is significant relationship between facilities and passengers' satisfaction on urban rail transit.

Hypothesis 4

The relationship between safety and passengers' satisfaction on urban rail transit.

Table 4.25: The Bayes Factor of Facilities towards Passengers' Satisfaction on urban Rail Transit.

Independent Variable 3	alpha	p-value
Safety	0.05	0.00

Source: Author's own Calculation (SPSS)

H_0: There is no significant relationship between safety and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between safety and passengers' satisfaction on urban rail transit.

Based on the Table 4.25, the Bayes factor of safety towards passengers' satisfaction on urban rail transit is 0.00. The H_0 should be rejected because par value (0.00) lesser than alpha (0.05). In conclusion, there is significant relationship between safety and passengers' satisfaction on urban rail transit.

Hypothesis 5

The relationship between diversities and passengers' satisfaction on urban rail transit.

Table 4.26: The Bayes Factor of Diversities towards Passengers' Satisfaction on Urban Rail Transit.

Independent Variable 4	alpha	p-value
Diversities	0.05	0.414

Source: Author's own Calculation (SPSS)

H_0 : There is no significant relationship between diversities and passengers' satisfaction on urban rail transit.

H_1 : There is significant relationship between diversities and passengers' satisfaction on urban rail transit.

Based on the Table 4.26, the Bayes factor of diversities towards passengers' satisfaction on urban rail transit is 0.414. The H_0 should not be rejected because par value (0.414) higher than alpha (0.05). In conclusion, there is no significant relationship between diversities and passengers' satisfaction on urban rail transit.

Hypothesis 6

The relationship between psychological profile and passengers' satisfaction on urban rail transit.

Table 4.27: The Bayes Factor of Psychological Profile towards Passengers' Satisfaction on Urban Rail Transit.

Independent Variable 5	alpha	p-value
Psychological Profile	0.05	0.001

Source: Author's own Calculation (SPSS)

H_0 : There is no significant relationship between psychological profile and passengers' satisfaction on urban rail transit.

H_1: There is significant relationship between psychological profile and passengers' satisfaction on urban rail transit.

Based on the Table 4.27, the Bayes factor of diversities towards passengers' satisfaction on urban rail transit is 0.001. The H_0 should be rejected because par value (0.001) higher than alpha (0.05). In conclusion, there is significant relationship between diversities and passengers' satisfaction on urban rail transit.

4.6 Multiple Linear Regression Analysis

Table 4.28: Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.169	.322		3.628	.000		
Service Quality	.142	.083	.125	1.707	.089	.524	1.908
Facilities	.424	.088	.361	4.821	.000	.505	1.979
Safety	.012	.085	.010	.145	.885	.560	1.785
Diversities	-.180	.085	-.140	-2.106	.036	.639	1.566
Psychological Profile	.180	.076	.146	2.357	.019	.742	1.348
Dependent Variable: Passengers' Satisfaction							

Source: Author's own Calculation (SPSS)

From the above output, the multiple regression equation of this model is:

$$\widehat{PS} = 1.169 + 0.142SQ + 0.424F + 0.012S - 0.180D + 0.180PP$$

Where

PS = Passengers' satisfaction towards urban rail transportation

SQ = Service quality

F = Facilities

S = Safety

D = Diversities

PP = Psychological profile

Based on the multiple regression equation of this model, the passengers' satisfaction towards urban rail transportation depends on the constant intercept, service quality, facilities, safety, diversities, and psychological profile. The expected sign of service quality, facilities, safety, and psychological profile is positive except diversities is negative sign. This means service quality, facilities, safety, and psychological profile has positive relationship towards passengers' satisfaction on urban rail transits in Cheras, Subang Jaya and Petaling Jaya, while there is an adverse relationship between diversities and passengers' satisfaction on urban rail transits in Cheras, Subang Jaya and Petaling Jaya. In the other words, policy makers can improve the service quality, facilities, safety of urban rail transits and psychological profile in order to rise the satisfaction of users on urban rail transits.

Table 4.29: Model Summary

Model	R	R square	Adjusted R Square	Std. Error of Estimation
1	.465	.216	.202	.72432

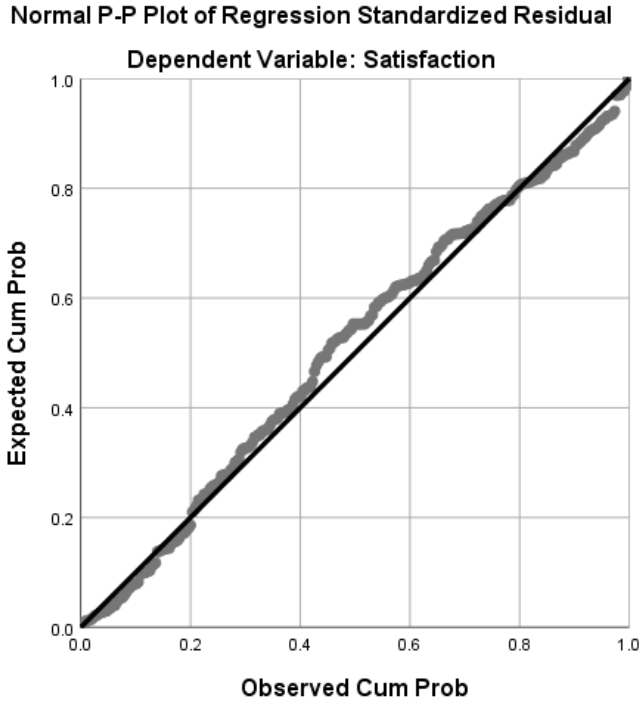
Source: Author's own Calculation (SPSS)

From the model summary Table 4.29, the Adjusted R squared of this model is 0.202. Therefore, 20.20 per cent of the variation of passengers' satisfaction on urban rail transits can be enlightened by the five determinants which are service quality, facilities, safety, diversities and psychological profile. Based on theory, the Adjusted R squared 0.202 is too low; instead, an amount of 0.60 and above is an adequate amount, indicates that the model is reliable and excellent result. However,

in this model, the low Adjusted R squared occurred is because there is some insignificant variables. Table 4.28 shows service quality and safety are not significant to the passengers' satisfaction because their p value is greater than alpha at 5 per cent. Also, attempting a human behaviour variable such as psychological profile and diversities, typically there will be a low value of R squared.

Although the Adjusted R squared is low, this multiple linear regression model is still reliable. In Table 4.28 shows there is no multicollinearity problem as the overall tolerance amount is greater than 0.1 and the overall VIF is lower than 10. In addition, according to Table 4.30 shows that F test is important and thus the model is assume to be highly significant. Lastly, Figure 4.11 indicates that points generally follow the regression line with no strong deviation, means that the residuals are normally distributed. Therefore, this multiple linear regression model has no biased variable and it is still reliable.

Figure: 4.11: Plot of Regression Line



Source: Author's own Calculation (SPSS)

Table 4.30: ANOVA Test Table

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.054	5	8.011	15.269	.000[b]
	Residual	145.324	277	.525		
	Total	185.378	282			

Dependent Variable: Satisfaction

Predictors: (Constant), Psychological Profile, Safety, Diversities, Service Quality, Facilities

Source: Author's own Calculation (SPSS)

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Summary

This chapter covers discussion to address to research aims based on data analysis, implication of studies and limitations and recommendations for future researches. Based on the multiple bivariate correlation analysis, the establishment of this chapter, it provided statistical insight to complement the research aims and problems that were investigated determinants of passengers' satisfaction on urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

Based on Table 5.1, service quality, facilities, safety and psychological profile were tested based on Bayes' Factor Alpha at 0.05 significance; they had positive and significant relationship with passengers' satisfaction towards urban rail transit while diversities was found positive and insignificant towards passengers' satisfaction towards urban rail transit. This implied that service quality, facilities, safety and psychological profile are intensive forecasters of passengers' satisfaction towards urban rail transit while diversities is not a viable forecaster of passengers' satisfaction towards urban rail transit in Cheras, Petaling Jaya and Subang Jaya.

In the same context, the Pearson's Correlation Coefficient r2 output showed that service quality and facilities were strongly tied to the passengers' satisfaction while assuming the research specifications were met under normal circumstance. Safety was assumed in literature review and the statistical analysis that it was connected to passengers' satisfaction levels towards rail transit. In addition, psychological profile, the newly introduced variable proved to have connection to said satisfaction level as well. The same cannot be said for diversities which was proven lacking statistical evidence with the passengers' satisfaction level towards rail transit in Cheras, Petaling Jaya and Subang Jaya.

5.1 Discussion

This study aims to discover general perception towards rail transit received in the course of this research which surrounds the areas lacked improvements over the years. From the statistical analysis, service quality and facilities were amongst the most impactful contributing factors to satisfaction level towards rail transit services. However, as the research members discovered that most researchers used primary data to approach their studies thus understood that value of face-to-face approaches with other passengers. In research, the overall passengers' satisfaction towards rail transit services were not satisfactory as per tabulated in the mean being 3.2367 (refer to Table 5.2), while its standard deviation being 0.8108 implies a vast difference in terms of perceived satisfactory levels. This is the same with our received feedbacks regarding the rail transit services; with some passengers pointed out that there had been tremendous improvements over the recent years especially in the changes in facilities, train frequency and conveniences such as the directories and reloading system.

When it comes to service qualities, the aspects that need improving is the attitude of the staff in especially in Cheras area. Feedbacks received from several respondents was staff's attitude were rude at times where a few respondents voiced out initially they did not know the new reloading method (reloading kiosk and Touch n Go machines) thus enquired the customer service counter. The most respondents who gave this feedback said that they were rudely dismissed to the dispenser machines and were given no further explanation as to how to use it. This is perhaps among the most discouraging factors, even some of the passengers expressed that they prefer private automobile over public transit because of bad service attitude like these. On the other hand, the vending machines proved to be useful and has received positive feedback from passengers that it sped up the queue and helped in easing the ticketing process.

Facilities of rail transit services undergone tremendous change and has since received positive feedback from the passengers over the years. The Bayes Factor indicated service quality and facilities goes hand-in-hand when it comes to

customer satisfaction. Most responded passengers noted that the imminently observable upgrades from the service are usually the physical improvements. However, the stations near around Cheras region are the stations which noticeably lack improvements as some chairs produce squeaking sounds, train glass broken and dirty coaches.

While some researchers found that safety is not a contributing factor to passengers' satisfaction, this research discovered safety had a strong influence to discourage people from taking rail transit. According to Azizan et al. (2016) noted that the securities around the crime hours for most commuters remain unchanged. Amongst respondents, 9 were victims of crimes like robbery, snatching and pickpocketing around, within stations and during commuting as well. Some passengers do not have the liberty for alternative transport means due to their level of income. In addition, gender coaches did not serve its intended purposes at times. 17 female respondents informed they were sexually harassed up to four years prior to this researched took place. 14 of the respondents also tried reporting to both police and the Rapid KL, none of the culprits were apprehended. Even with security cameras installed in most areas, police gave no feedback and the Rapid KL did not express their concern over the issue nor follow-ups. When it comes to diversities, most passengers complained the crowd was unbearable which often have some of the passengers to opt for cab or personal vehicle especially during weekends.

From the survey feedbacks, psychological influence had the most popular agreement in statement including: maintaining a comfortable distance, use of technology, quiet environment, shorter waiting period and nearer transit stations. The most frequently received feedbacks were to improve the train frequency even during non-peak hours. The train during peak hours has increased greatly compared to the past, shortened from thirteen minutes to three minutes waiting time; the improvement was not evident for the non-peak hours. It is necessary to emphasise that, when asked, the preference of technology over was that motivator behind this option is that the customer service provides poor quality of service and especially the service attitude. Certain staffs were polite however; there was the few poor examples that ultimately stood out.

5.2 Implications and Policy Recommendations

5.2.1 Previous Findings & Implications

The main reference of this research, Ummi Aqilah Khalid et al. (2014) deemed poor service quality has been the top discouraging aspect for most passengers. According to Ahmad Nazrul Hakimi Ibrahim, Siti Khairunisa Zainal, and Muhamad Nazri Borhan. (2019) stated that majority of the rail transit users in Kuala Lumpur, Malaysia found the service attitude of the staffs wanting. Another aspect mentioned within the said research was coherent with the response of this research was the hefty price of the rail services and the inaccuracy in the displayed train arrival time. Hence, this would only imprint stronger negative image to the younger users of the generation, leading to their gradual independence from rail services as Dahalan et al. (2015) foreseen.

While were multiple red flags in the past researches regarding lack of maintenance of facilities customers constantly could not arrive to their destination on time (Chuen, Karim and Yusoff, 2014). This is due to the poor coordination between public transportation such as the rail services and bus services were not responsive, constantly lead to delay between trips. In the Kuala Lumpur Structure Plan 2020, it shown that the Kuala Lumpur City Hall (Dewan Bandaraya Kuala Lumpur, DBKL) was aware the inefficiency in coordinating the traffic to facilitate better accessibility for the public as stated in article 402 (Kuala Lumpur City Hall, 2004). In short, the main issue with facilities should focused on the lack of coordination instead of the upgrades in facilities.

According to Cozens, Neale, Hillier and Whitaker (2004) concluded that crime is an inevitable and the amount of waiting time at the stations and platforms does increase the chance for crime to occur. Based on the reseach of Azizan et al. (2016) found that most crimes like pickpocketing, rape,

murder, armed robberies and sexual harassment generally happen from 7.00 am.to 11 a.m. and 7.00 p.m. to 11.00 p.m. and yet they observed no securities and patrol in their research period. From the both past empirical references above and the responded surveys, improvements on security measures were far from adequate and is an issue needs imminent government attention.

Among the diversity influencing factors, there are two aspects the lawmakers can enforce and improve on. Crowdedness and comfort could controlled from two angle, the density of the people in an area and the noise factor. In Environment Quality Act 1974, the act did not include noise reduction or standards within the transportation clause. Hence, this research recommends imposing noise regulatory acts within public transportation coaches. It is possible to reduce noise by enforcing public transport to install noise reduction such as the noise dampening panels in train coaches and modifications within the compounds' architecture designs. Crowdedness is the matter of coordination can resolved by better inter-transportation coordination as the trip interval has shortened to 2-3 minutes each trip during peak hours. The improvement can see in the following paragraph.

As inefficiencies were observed in KL Structure Plan 2020, the long distance between residential area and train stations is still a concern (Kuala Lumpur Structure Plan, 2004). The travel distance needed to reach rail station has shortened with the extension to Petaling Jaya and Subang Jaya in the recent five years improved but the coordination in bus and taxi services still lacks moderation as the passenger feedback to us still mentions they might need to wait for 20 minutes and above. This would also mentally exhaust the passengers between switching the mode of transport. Should they have alternatives, this would lead to the increase of road traffic congestion.

5.2.2 Policy Recommendations

In efforts to improve service quality, the government should increase transportation subsidies in the Malaysia National Budget 2021 to decrease burden for existing regular rail transit users, the effort would undoubtedly increase new rail transit users with accelerated effect, as cash flow is a public concern with the increasing cost of living. MyRapid, the company of rail transit in Kuala Lumpur should eagerly improve on the service quality of the staffs by strict enforcement and supervisions on their staffs to enhance user experience. Moreover, more strategic rail station placements needed consider by the Prasarana Malaysia and Ministry of Transport Malaysia.

For facilities, this research also urge that the National Transport Policy 2019-2030 would prioritise in the mutual coordination between public transports as the public's faith in public transportation has been in a decrease, now at a 20:80 for public transport to private motor vehicles ratio (Ministry of Transport Malaysia, 2019). In this research, it is recommended that Integrated Transportation Management Centre (ITIS) to utilise its real time CCTV to synchronise to all public transportation platforms to regulate securities and facilitate as well as better traffic management. With better coordination between busses and train trips, fewer delays experienced by the passengers also improve their emotional exhaustion and safety.

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There was no mentioning of increased security forces patrol will added to different hours and in all the rail transit stations for a better security detail to the public. Hence, it is recommended that the next Kuala Lumpur Structure Plan to include an increased, all-rounded police patrol to public transportation stations into the considerations. The following Kuala Lumpur Structure Plan 2040 has yet to be finalised (drafted on 18th of March 2020), this research urge that the Kuala Lumpur City Hall to increase security personnel and police patrols around the public transportation stops, train stations and within the all the train stations.

5.3 Recommendations for Future Studies

5.3.1 Multiple periods for conducting survey and targeting respondents age below sixty

Based on the descriptive data in Chapter 4.1, respondents of the questionnaire mostly are youngster. There are 72.08 per cent of the respondents were aged less than or equal to twenty-five years old while only 27.92 per cent were aged above twenty-six. In order to reach different age of respondents for the questionnaire, different periods of time can be chosen, it is not necessary at the peak hours at the station. Generally, a young adult who lesser than 26 years old has the behaviour of travelling either to their work place or campus by using public transportation. Instead, adulthood who aged above twenty-six years perhaps has stable income and financial ability to own a personal vehicle. However, based on the research before, Ghosh, Ojha and Geetika (2017) claimed that collecting surveying data by using convenience-sampling method is more useful than the random sampling technique. Random sampling is not workable as the accessibility of users specially influenced by arrival and the departure of rail transits. The researchers were able to find different aged group of respondents by applying convenience sampling technique which able to reach the population that is no equal opportunity to be selected. In different time periods of day and night for two weeks, so that the types of passengers traveling to and from different places may be included. Most of the respondents of the researcher questionnaire is in the age group 20 to 40 years which occupied 47.51 per cent and the second most respondents group is between 41 and 60 years old, occupied 21.72 percent. Therefore, applying the technique of convenience sampling and conduct the survey at different periods of day and night can successfully reach the various age groups of respondents for the questionnaire.

In addition, according to Rozmi Ismail et al. (2012) stated that after age of sixty, people may not have the behaviour of taking rail transportation.

This may because they may already pension. Therefore, for future study, researcher should target the respondents with aged less than sixty, instead of more than sixty years old.

5.3.2 Method of approaching respondents and courtesy

The survey collected is less than the respondents' target. There are only 283 data collected; rather, the expected number of respondents targeting which calculated by using Yamanae's simplified formula in Chapter 1, with (n=400). This is because people tended to have high safety consciousness and security alert nowadays. For avoiding to receive doubts and to increase the chances of completing the survey, researchers should shows student's identity card or wears shirt that represents the institution where researchers come from, as there are concerns where frauds might happen when people were approached to complete surveys and their personal data ended up for fraudulent conducts. Such practice would build confidence among the targeted audience and increase the effectiveness of survey to be done.

Other than that, courtesy and kindness is essential when approaching respondent. As they have limited time while transiting, it is important to present a good attitude and courtesy while approaching the commuter to complete the survey.

5.3.3 Enhancing English Communication Skill

From the demographic data collected, the greatest number of respondents were Chinese, which accounted 80.92 per cent. This is because Chinese people is more easily to be communicated by using mother language and average English speaking skill is giving the difficulty and low confidence level for communicating with other races such as Malays,

Indians, and foreigners. In conducting a perfect research, English is the most significant language in the world and it is the key to communicate with people in this multi-ethnic country. In this case, it is important that the researchers to improve their international language communication skill level, so that they capable to approach the different races of respondents for interviewing, which also can reach average percentage of races among the respondents. In order to strengthen the level of English of people in this multi-cultural country, the Ministry of Education probably provides more English communication classes, additional oral presentation in the educational courses since childhood at the kinder garden. Therefore, a good English communication level is needed to be utilize for communicate with other races of people.

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APPENDIXES

APPENDIX A

Pearson's Correlation Table

df \ α	0.2	0.1	0.05	0.02	0.01	0.001
1	0.951057	0.987688	0.996917	0.999507	0.999877	0.999999
2	0.800000	0.900000	0.950000	0.980000	0.990000	0.999000
3	0.687049	0.805384	0.878339	0.934333	0.958735	0.991139
4	0.608400	0.729299	0.811401	0.882194	0.917200	0.974068
5	0.550863	0.669439	0.754492	0.832874	0.874526	0.950883
6	0.506727	0.621489	0.706734	0.788720	0.834342	0.924904
7	0.471589	0.582206	0.666384	0.749776	0.797681	0.898260
8	0.442796	0.549357	0.631897	0.715459	0.764592	0.872115
9	0.418662	0.521404	0.602069	0.685095	0.734786	0.847047
10	0.398062	0.497265	0.575983	0.658070	0.707888	0.823305
11	0.380216	0.476156	0.552943	0.633863	0.683528	0.800962
12	0.364562	0.457500	0.532413	0.612047	0.661376	0.779998
13	0.350688	0.440861	0.513977	0.592270	0.641145	0.760351
14	0.338282	0.425902	0.497309	0.574245	0.622591	0.741934
15	0.327101	0.412360	0.482146	0.557737	0.605506	0.724657
16	0.316958	0.400027	0.468277	0.542548	0.589714	0.708429
17	0.307702	0.388733	0.455531	0.528517	0.575067	0.693163
18	0.299210	0.378341	0.443763	0.515505	0.561435	0.678781
19	0.291384	0.368737	0.432858	0.503397	0.548711	0.665208
20	0.284140	0.359827	0.422714	0.492094	0.536800	0.652378
21	0.277411	0.351531	0.413247	0.481512	0.525620	0.640230
22	0.271137	0.343783	0.404386	0.471579	0.515101	0.628710
23	0.265270	0.336524	0.396070	0.462231	0.505182	0.617768
24	0.259768	0.329705	0.388244	0.453413	0.495808	0.607360
25	0.254594	0.323283	0.380863	0.445078	0.486932	0.597446
26	0.249717	0.317223	0.373886	0.437184	0.478511	0.587988
27	0.245110	0.311490	0.367278	0.429693	0.470509	0.578956
28	0.240749	0.306057	0.361007	0.422572	0.462892	0.570317
29	0.236612	0.300898	0.355046	0.415792	0.455631	0.562047
30	0.232681	0.295991	0.349370	0.409327	0.448699	0.554119

df \ α	0.2	0.1	0.05	0.02	0.01	0.001
35	0.215598	0.274611	0.324573	0.380976	0.418211	0.518898
40	0.201796	0.257278	0.304396	0.357787	0.393174	0.489570
45	0.190345	0.242859	0.287563	0.338367	0.372142	0.464673
50	0.180644	0.230620	0.273243	0.321796	0.354153	0.443201
60	0.164997	0.210832	0.250035	0.294846	0.324818	0.407865
70	0.152818	0.195394	0.231883	0.273695	0.301734	0.379799
80	0.142990	0.182916	0.217185	0.256525	0.282958	0.356816
90	0.134844	0.172558	0.204968	0.242227	0.267298	0.337549
100	0.127947	0.163782	0.194604	0.230079	0.253979	0.321095
125	0.114477	0.146617	0.174308	0.206245	0.227807	0.288602
150	0.104525	0.133919	0.159273	0.188552	0.208349	0.264316
175	0.096787	0.124036	0.147558	0.174749	0.193153	0.245280
200	0.090546	0.116060	0.138098	0.163592	0.180860	0.229840
250	0.081000	0.103852	0.123607	0.146483	0.161994	0.206079
300	0.073951	0.094831	0.112891	0.133819	0.148019	0.188431
350	0.068470	0.087814	0.104552	0.123957	0.137131	0.174657
400	0.064052	0.082155	0.097824	0.115997	0.128339	0.163520
450	0.060391	0.077466	0.092248	0.109397	0.121046	0.154273
500	0.057294	0.073497	0.087528	0.103808	0.114870	0.146436
600	0.052305	0.067103	0.079920	0.094798	0.104911	0.133787
700	0.048427	0.062132	0.074004	0.087789	0.097161	0.123935
800	0.045301	0.058123	0.069234	0.082135	0.090909	0.115981
900	0.042711	0.054802	0.065281	0.077450	0.085727	0.109385
1000	0.040520	0.051993	0.061935	0.073484	0.081340	0.103800
1500	0.033086	0.042458	0.050582	0.060022	0.066445	0.084822
2000	0.028654	0.036772	0.043811	0.051990	0.057557	0.073488
3000	0.023397	0.030027	0.035775	0.042457	0.047006	0.060027
4000	0.020262	0.026005	0.030984	0.036773	0.040713	0.051996
5000	0.018123	0.023260	0.027714	0.032892	0.036417	0.046512

Source: Adopted from Zaiontz, (n.d.).

Summary of the Statistical Findings (Relation to Dependent Variable)

Independent Variable	P-value	Relationship	Significance	Degree of Impact
Service Quality	0.00	Positive	Significant	High Impact
Facilities	0.00	Positive	Significant	High Impact
Safety	0.00	Positive	Significant	Moderate Impact
Diversities	0.414	Positive	Insignificant	Low/No Impact
Psychological Profile	0.001	Positive	Significant	Moderate Impact

Source: Author's own calculation (SPSS)

Notes: α at 0.05 significance, impact of variables evaluated based on Pearson's Correlation Coefficient R^2 table.

APPENDIX B

UNIVERSITI TUNKU ABDUL RAHMAN
Faculty of Business and Finance (FBF)

Passenger's Satisfaction towards Urban Rail Transit in Cheras, Petaling Jaya and Subang Jaya, Malaysia

Survey Questionnaire

Dear Respondents:

We are students of Bachelor of Economics (Hons) Financial Economics from UTAR Kampar Campus, Perak and you are invited to participate in the above mentioned research project.

The purpose this survey is to conduct a research in identifying how the rail transit among the Cheras, Petaling Jaya and Subang Jaya area influence passenger's satisfaction. Your participation will greatly contribute to the success of the survey. We deeply appreciate your help in participating in this survey, and your responses will remain private and will be used strictly for **academic purpose only**.

Thank you.

Name	Student ID	Contact Number
Chong Joe Fai	16ABB06076	010-2109469
Chong Hwei Zhen	16ABB03815	016-6550026
Lim Keng Teck	16ABB03242	010-2311581
Tan Huan Yuan	16ABB05993	011-10833857

Instructions:

1) This questionnaire consists of **THREE (3)** section. Please answer **ALL** questions in all sections.

2) Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Acknowledgment of Notice

[ ] I have been notified by you and that I hereby understood, consented and agreed per UTAR notice.

[ ] I disagree, my personal data will not be processed.

Section A: Respondent's Personal Details

In this section, you have to fill in some of your personal details. Your answers will be kept strictly confidential. Please tick (√) accordingly to your choice.

1.Gender:
[ ] Male [ ] Female

2. Age:
[ ] Less than 25 years old
[ ] 26-30 years old
[ ] 31-40 years old
[ ] 41-50 years old
[ ] 51-60 years old
[ ] 61 years old and above

3. Race:
[ ] Malay
[ ] Chinese
[ ] Indian
[ ] Other:_____

4. Nationality:
[ ] Malaysian [ ] Non Malaysian
:_____

5. Status of Employment:
[ ] Student
[ ] Own Business
[ ] Employee
[ ] Unemployed
[ ] Other:_____

6. Marital Status:
[ ] Single
[ ] Married
[ ] Divorced/Separate
[ ] Widowed

7. Income Level:
[ ] Less than RM1,000
[ ] RM1,001-RM4,000
[ ] RM4,001-RM7,000
[ ] RM7,001-RM10,000
[ ] RM10,000 and above

8. Living Area:
[ ] Cheras
[ ] Petaling Jaya
[ ] Subang Jaya
[ ] Other:_____

9. Are you as regularly user of rail transit service?
[ ] Yes [ ] No

10. What type of the rail you often used?
[ ] KTM Komuter (Keretapi Tanah Melayu)
[ ] LRT (Light Rail Transit)
[ ] MRT (Mass Rail Transit)

Section B: Dependent Variable

This section is seeking your opinion regarding the satisfaction towards the rail transit services. Please indicate the extent for the following statements which reflect your stance as a passenger using the services. Please circle most appropriate answer within the Likert scale (1-5).

Satisfaction towards Urban Rail Transit

Strongly Disagree (SD)	Disagree (D)	Neither Agree Nor Disagree (N A nor D)	Agree (A)	Strongly Agree (SA)
1	2	3	4	5

No.	Statements	SD	D	NA/D	A	SA
PS1	I satisfied with the overall services provided by rail transit.	1	2	3	4	5
PS2	I satisfied with the fare charge by rail transit.	1	2	3	4	5
PS3	I satisfied with the environment of the rail transit station.	1	2	3	4	5
PS4	I satisfied with the punctuality of time arrival of rails.	1	2	3	4	5
PS5	I satisfied with the cleanliness of the station and coaches.	1	2	3	4	5

Section C: Independent Variable

This section is seeking your opinion regarding the factors influence the satisfaction towards the rail transit.

1. Service Quality

No.	Statements	SD	D	NA/D	A	SA
SQ1	The operation hour is reasonable.	1	2	3	4	5
SQ2	I satisfied with the empathy of rail station staff.	1	2	3	4	5
SQ3	I satisfied with the customer services provided.	1	2	3	4	5
SQ4	I found that the information counter is helpful and informative.	1	2	3	4	5
SQ5	The service provided like Touch 'n go and self-service ticket vending machine are useful and convenience.	1	2	3	4	5

2. Facilities

No.	Statements	SD	D	NA/D	A	SA
F1	Management conduct proper maintenance of infrastructure frequently. (Example: coaches, escalator, washroom)	1	2	3	4	5
F2	Facilities of the station are sufficient. (Example: washroom, escalator, vending machine, lift)	1	2	3	4	5
F3	The platform capacity is sufficient during peak hours.	1	2	3	4	5
F4	Facilities have disabled friendly features.	1	2	3	4	5
F5	Convenient to have user-friendly machine. (Example: Credit reload Kiosk, Ticket vending machine)	1	2	3	4	5

3. Safety

No.	Statements	SD	D	NA/D	A	SA
S1	The environment of the station is safe.	1	2	3	4	5
S2	The situation are safe during commuting.	1	2	3	4	5
S3	I'm safe when waiting for the rail.	1	2	3	4	5
S4	I prefer security are patrolling.	1	2	3	4	5
S5	Gender base coaches are useful. (Example: Female coaches)	1	2	3	4	5

4. **Diversities**

No.	Statements	SD	D	NA/D	A	SA
D1	I'm hard to get into coaches as the platform is too hustle during peak hour.	1	2	3	4	5
D2	I prefer fewer people environment of the station.	1	2	3	4	5
D3	I prefer rail transit than own transportation.	1	2	3	4	5
D4	Comfort at the rail station when peak hour.	1	2	3	4	5
D5	I prefer a comfortable distance with other passengers while entering the coaches.	1	2	3	4	5

5. **Psychological Profile**

No.	Statements	SD	D	NA/D	A	SA
PP1	I prefer using technology in rail transit.	1	2	3	4	5

PP2	I like to have coaches with free sitting rather than fixed sitting.	1	2	3	4	5
PP3	I prefer quiet environment during commute.	1	2	3	4	5
PP4	I prefer softer audio during announcement.	1	2	3	4	5
PP5	I prefer shorter waiting period of time for each train.	1	2	3	4	5
PP6	I prefer that rail transit access nearby my housing area.	1	2	3	4	5

Thank You

PERSONAL DATA PROTECTION STATEMENT

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. The purposes for which your personal data may be used are inclusive but not limited to:- □ For assessment of any application to UTAR
   - For processing any benefits and services
   - For communication purposes
   - For advertorial and news
   - For general administration and record purposes
   - For enhancing the value of education
   - For educational and related purposes consequential to UTAR
   - For the purpose of our corporate governance
   - For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan

2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.
3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.
4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

- By submitting the form you hereby authorize and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.
- If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfil our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.
- You may access and update your personal data by writing to us at vincentlim981025@1utar.my

APPENDIX C

Passenger's Satisfaction towards Urban Rail Transit in Cheras, Petaling Jaya and Subang Jaya, Malaysia

Dear Respondents:

We are students of Bachelor of Economics (Hons) Financial Economics from UTAR Kampar Campus, Perak and you are invited to participate in the above mentioned research project. The purpose this survey is to conduct a research in identifying how the rail transit among the Cheras, Petaling Jaya and Subang Jaya area influence passenger's satisfaction. Your participation will greatly contribute to the success of the survey. We deeply appreciate your help in participating in this survey, and your responses will remain private and will be used strictly for academic purpose only.

Thank you.

* Required

Gender *

Mark only one oval.

- ◯ Male
- ◯ Female

Age *

Mark only one oval.

- ◯ Less than 25 years old
- ◯ 26-30 years old
- ◯ 31-40 years old
- ◯ 41-50 years old
- ◯ 51-60 years old
- ◯ 61 years old and above

Race*

Mark only one oval.

- ◯ Malay
- ◯ Chinese
- ◯ Indian
- ◯ Other:

Nationality *

Mark only one oval.

- ◯ Malaysian
- ◯ Non Malaysian
- ◯ Other: _____

Status of Employment *
Mark only one oval.

- Student
- Own Business
- Employee
- Unemployed
- Other: _____

Marital Status *
Mark only one oval.

- Single
- Married
- Divorced/Separate
- Widowed

Income Level (Monthly)
Mark only one oval.

- Less than RM1,000
- RM1,001-RM4,000
- RM4,001-RM7,000
- RM7,001-RM10,000
- RM10,000 and above

Living Area *
Mark only one oval.

- Cheras
- Petaling Jaya
- Subang Jaya
- Other: _____

Do you take any rails transit? *
Mark only one oval.

- Yes
- No

What type of the rail you often used? (Choose only one) *
Mark only one oval.

- KTM Komuter (Keretapi Tanah Melayu)
- LRT (Light Rapid Transit)
- MRT (Mass Rapid Transit)

Skip to question 11

Section B Dependent Variable

This section is seeking your opinion regarding the satisfaction towards the rail transit services. Please indicate the extent for the following statements which reflect your stance as a passenger using the services. Please circle most appropriate answer within the Likert scale (1-5).

Strongly Disagree (SD) 1 Disagree(D) 2 Neither Agree Nor Disagree(N A nor D) 3 Agree(A) 4 Strongly Agree(SA) 5

Satisfaction towards Urban Rail Transit *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I satisfied with the overall services provided by rail transit.					
I satisfied with the fare charge by rail transit.					
I satisfied with the environment of the rail transit station.					
I satisfied with the punctuality of time arrival of rails.					
I satisfied with the cleanliness of the station and coaches.					

Skip to question 12

Section C Independent Variable

This section is seeking your opinion regarding the factors influence the satisfaction towards the rail transit.

Strongly Disagree (SD) 1 Disagree(D) 2 Neither Agree Nor Disagree(N A nor D) 3 Agree(A) 4 Strongly Agree(SA) 5

Service Quality *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
The operation hour is reasonable.					
I satisfied with the empathy of rail station staff.					
I satisfied with the customer services provided.					
I found that the information counter is helpful and informative.					

The service provided like Touch ‘n go and self-service ticket vending machine are useful and convenience.					

Facilities *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
Management conduct proper maintenance of infrastructure frequently. (Example: coaches, escalator, washroom)					
Facilities of the station are sufficient. (Example: washroom, escalator, vending machine, lift)					
The platform capacity is sufficient during peak hours.					
Facilities have disabled friendly features.					
Convenient to have user-friendly machine. (Example: Credit reload Kiosk, Ticket vending machine)					

Safety *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
The environment of the station is safe.					
The situation are safe during commuting.					
I’m safe when waiting for the rail.					
I prefer security are patrolling.					
Gender base coaches are useful. (Example: Female coaches)					

Diversities *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I'm hard to get into coaches as the platform is too hustle during peak hour.					
I prefer fewer people environment of the station.					
I prefer rail transit than own transportation.					
Comfort at the rail station when peak hour.					
I prefer a comfortable distance with other passengers while entering the coaches.					

Psychological Profile *

Mark only one oval per row.

	Strong Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I prefer using technology in rail transit.					
I like to have coaches with free sitting rather than fixed sitting.					
I prefer quiet environment during commute.					
I prefer softer audio during announcement.					
I prefer shorter waiting period of time for each train.					
I prefer that rail transit access nearby my housing area.					