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User Perceptions of Rail Public Transport Services in Kuala Lumpur, Malaysia: KTM Komuter

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Abstract

The needs for effective and efficient public transportation services are crucial to attract more people to use public transport, hence overcoming the issue of traffic congestion. Public transportation in Malaysia, including KTM Komuter, also facing various challenges, hence cannot offer the quality of services desired by passengers. This study aims to investigate the user perceptions towards KTM Komuter services. A survey conducted among the users during the weekdays and weekends. Findings showed three areas of their greatest concerns included services frequency, adherence to schedule and delays. Further, this paper highlighted KTM Komuter services that necessary and needed improvement.

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1. Introduction

Public transportation is a mode of transportation that been provided by the state to the public. It includes several mode of transportation such as buses, subways, taxis, rails and ferry boats (Tran and Kleiner, 2005). The services that been provided by the government ease the public's movement whether they live in urban or rural area. According to Dridi et al. (2005) and Behwal (2010), public transport services, must follow regular schedules; be safe and rapid, guarantee high service quality, utilize resources efficiently and meet users' need. In Malaysia, there exist many public transportation systems such as trains, buses, taxis, trishaws and trains; including Keretapi Tanah Melayu (KTM) Komuter, operated by Malaysian Railway. KTM Komuter is a heavy-rail public transport operator servicing the commuters from the suburban localities of Greater Kuala Lumpur region to the city centre. Nowadays, traffic congestion is one of the significant problems that confront many urban areas in Malaysia, including the Klang Valley area. Therefore, public transportation services need to operate more effective and efficient in order to attract more people to use public transportation as well as overcome the issue of traffic congestion. However, facing several challenges, most of the public transportation systems in Klang Valley area, especially, KTM Komuter cannot offer the quality of the services needed by passengers. KTM Komuter faces challengers such as delays, punctuality (time arriving), modified ticketing systems, delays time, changing frequency, increased safety factors, and convenience levels. The issues of public transports in Malaysia, in general, are becoming more widespread, and services are below required levels, which could not satisfy the consumer needs and expectations (Zaherawati et al., 2010).

1.1. KTM Komuter

KTM Komuter is a heavy-rail public transport operator servicing the commuters from the suburban localities of Greater Kuala Lumpur region to the city centre. Up to the second quarter 2012, approximately 8,449,000 passengers travelled with KTM Komuter (KTMB Traffic Statistics, 2012). Thus, makes this service, which started in 1995 as one of the primary public transportation service providers in Malaysia. Furthermore, KTM Komuter is an alternative and more sustainable transportation mode to congested road networks, both in terms of regional and local access, and also provides access for those who do not have private transportation. In total, KTM Komuter has 53 stations along 175 km network. It consists of two cross-city routes, namely the Batu Caves - Port Klang - Sg. Gadut lines, plus a shuttle service from Rawang to Tanjung Malim, which began in April 2007. Transfers between the two main lines can be made at KL Sentral, Kuala Lumpur and Putra stations. Same-platform or cross-platform interchange is available at Kuala Lumpur station. Many issues regarding KTM performance identified from the contemporary literature. The lack of integration between ticketing systems and inadequate supply of rolling stocks resulting in services rescheduling from 15-minutes to 20-minutes is two significant problems. Other concerns include low priority on maintenance, overhaul and repair programs of the old rolling stocks resulting in a reduction of overall capacity especially during peak hours and reduced feeder services. Moreover, this study will include on examining the costumer's satisfaction level in terms of punctuality (time arriving), ticketing systems, delays time, frequency of train, security factors, convenience and space.

2. Literature review

The most severe problem concerning the public transportation system is the lack of focus and coordination at all levels throughout the system. According to Shwarcz.S (2003) at the national level the government does not actively promote public transportation, and there is a lack of government focus on

the problem. In the 8th Malaysia Plan, which is the government road map for development in Malaysia over the next several years, there is significant emphasis on improving the quality of life in urban areas and concern, for environmental issues, but there are few direct references made to public transportation. In addition, no single ministry, or department oversees or is in charge of public transportation. Many agencies oversee various parts of the system, but there is no coordination between them and the state, and local governments have no collective formal authority. Shwarcz.S (2003), also argued that there is a lack of integrations at the system level between the different modes and within each mode. Infrastructure projects such as the LRT systems and the monorail constructed without serious consideration of their role in the larger system. There are many bus companies, but they do not serve as efficient feeder services to the light rail systems, nor coordinated with each other. Usually, there are several bus companies serving an area and competing with each other; while other areas may have no services at all. While, according to Zaherawati et al. (2010), other examples of issues faces by public transport in Malaysia are the time arrival delaying in the Light Rail Transit (LRT) and Keretapi Tanah Melayu Berhad (KTMB) public transport modes. Users were unsatisfied with the service quality provided by the KTMB especially in terms of train punctuality and frequencies. One factor contributing to this was the insufficient capacity to carry more passengers resulting in congested train services (Utusan Malaysia Online, 2008). This problem showed that even if the public transportation modernized, the service quality is still lacking and not well implemented. This will lead to the negative perception and frustration among public transports users (Thompson and Schofield, 2002). Other problems also faced by commuters and passengers included late buses. Despite the published scheduled of 15 minutes headways, users often had to wait at least half an hour. These punctuality problems are the norms faced by many captive riders of public transportation in Malaysia, (The Malay Mail, 2009). Therefore, it is necessary to improve the quality of public transportation services in Malaysia to encourage more public transport user, thus reducing traffic congestion in urban areas.

2.1. Issues of public transport services regarding to KTM Komuter

2.1.1. Waiting time

The first issue that experienced by KTM Komuter users is relatively long waiting time. Based on the survey conducted in this study, the maximum waiting time of 150 minutes reported. Half of them were not able to board the first train during peak hours (morning and evening peak hours) and had to wait for up to the third train to continue the journey.

2.1.2. Punctuality

According to Zaherawati et al. (2010), punctuality, which measured in terms of time arrival and departure, is an essential element in defining the reliability of services. Currently, lack of punctuality has become a major problem in KTM Komuter services. Most of the users perceived that in terms of punctuality, arriving time has become worse. This problem frequently occurred during peak hours. According to Lester Kong (2010), improving the reliability of the service by focusing on punctuality, will reduce door-to-door journey times, including in-vehicle and out-of-vehicle travel time during peak periods.

2.1.3. Ticketing systems

Several issues regarding ticketing system deemed to be necessary for evaluation:

- There are 16 different bus and rail operators across Klang Valley. Their independent ticketing and collection system caused many integration issues within the public transportation systems.

- The average travel time of a single journey has excessively lengthened. These to include as much as 25% for queuing and waiting time for ticket purchase and/or arrival of vehicles.

The first problem, due to the poor ticketing system, especially, during peak hour even after the implementation of using a contactless card. The issues faces by commuters usually were those relating to inadequate ticketing counters and utilisation of ticket vending machines during peaks hours. These have increased waiting and overall journey time. Travel time has been in excess of 25 percent due to this extra waiting time for ticket transactions, in addition to, vehicles arriving late at the stations or platforms. In other words, to reach the destination at a designated arrival time, passengers have to begin the journeys 25% earlier than the usual departure time.

2.1.4. Delays time

Delay time for transit vehicles did not include dwell times at transit stops, but the acceleration and deceleration delay at the transit stop is part of the delay time itself. Delays time should be avoided to create a sustainable system. Hence, public transportation could be more attractive to all commuters and overcome problems of congestion and delay which have direct costs on people and their activities. Issues regarding on delays time persistently associated with KTM Komuter. Normally, the delays time occurred due to inadequate provision of coaches and the low quality of the train sets (breakdown problems). Keretapi Tanah Melayu Berhad (KTMB) included high monetary cost maintaining the old coaches. Consequently, the maintenance and improving the old coaches would take as long as six months to obtain the spare parts. Another problem that faced by KTM related to the performances of feeder services, which also increased travel time. For example, trains and buses often associated with unreliable services, frequent delays and cancellations, and hardly to adhere to schedules. Commuters found it very challenging to plan ahead resulting in disruptions to their daily journeys undertaking. There were suggestions that KTM should improve the train service in terms of punctuality and provide a suitable frequency (for example every 10 minutes) in reducing congestion at the stations especially during peak hours. The other solution was to promote non-essential trip be made outside the peak periods so that the regular commuters could travel without any delays.

2.1.5. Frequency of train

Switching to public transport is always dependent on the services frequency offered. This is significant because a proper frequency provision by the KTM Komuter could reduce the congestion especially during peak hours. A study that illustrated in Singapore the trains arrive every 3 to 5 minutes, compared to KTM Komuter, i.e. 15 minutes during peak hours and 30 minutes during off-peak hours. Currently, with a train every 15 minutes during peak hours, it was usually to be sardine-packed especially when one train delayed. It is not unusual for commuters to experience disrupted services, and whenever this happens during peak hours, the number of passengers would build up to the extent that the train carriages would be highly packed. Missing a train by just two minutes could mean a loss of up to 45 minutes of waiting time in some instances, where the passengers have to take connecting trains or shuttle bus. This automatically discouraged people from switching to public transportation. Furthermore, it will also affect their level of satisfaction of the current service provided, unless there was an increased frequency of the services. Overcrowded situation in the coaches has also contributed to the increased waiting time. Overloaded coaches occurred when trains were unable to arrive according to the scheduled time, leading to further delays. Additionally, overloaded coaches could induce some problems such as an inconvenience and vulnerable to safety (asphyxia).

3. Study methodology

3.1. Data collection

The primary data collection adopted for this study. Semi-structured questionnaire developed consisting passengers' perception towards the utilization of the KTM Komuter rail services based on their personal experiences and direct interaction with system from 21 November 2011 to 21 February 2012. The questionnaire distributed only to the on board passengers, excluding waiting passengers at terminal and stations. The study managed to have 1,000 completed questionnaires.

3.2. Statistical analysis

The data from this study analyzed by using Statistical Package for Social Science (SPSS). The first step of the analysis was the exploratory data analysis where the data examined and cleaned. All descriptive analyses conducted for each variable.

4. Analysis

4.1. Descriptive analysis on passengers' perception of KTM Komuter's level of services

Moreover, this research will cover on examining the customer's satisfaction level in terms of punctuality (time arriving), ticketing systems, delays time, frequency of train, safety elements, convenience and space. In order to investigate the passengers' perception on KTM Komuter's level of services, customer satisfaction survey used. Some 1200 questionnaire forms distributed to passengers on-board the train on various survey days and time. Data entry and cleaning have found some 1000 samples were useful and meaningful for data analysis purposes. The questionnaire form categorized into three parts, which are, trip maker characteristics, trip making characteristics and perceptions on service performance of KTM Komuter. The trip maker and making characteristics used to analyse the background of the respondents and the effects it has on their perception. In the second part, the responses were more qualitative in nature as it indicated perceptions of the users regarding the performance of the transit services. The perception variables in this study collected in the form of ordinal data.

4.2. Respondents' socio-demographic characteristics

From the 1000 samples, some 42% were male. This reflected the passenger composition and the selection of railcars during the surveys. The majority was local users (91%), with at least a university or college qualification (56%). The mean age of travellers was 30 years old, indicating a young, able-bodied and mobile sample grouping traveling on his or her own (more than 92% traveled alone). The mean monthly household income reported by respondents were RM3018, indicating a slightly higher income groups than the average population of Malaysia (GDP USD7,000 or RM 22,000 annually). The majority of the respondents are choice users, having, owned or an access to alternative vehicles for similar types of trips undertaken during the survey periods. One in five (20%) had no access to an alternative mode for trips made during the surveys, i.e. captive users.

4.3. Respondents' trips characteristics

Ordinarily, all of the respondents used KTM Komuter for an approximate one trip per week, indicating a relatively lower usage rate, and not as daily. During the surveys, some 78% of respondents has intercepted during both am and pm off-peak hours due to several logistics reasons. As such, only one in ten (10%) respondents were regular or daily commuters. The routes traveled were not equally distributed. More respondents intercepted along northwards journeys from Sg. Gadut towards Rawang and Tanjung Malim (40%) and southwards from Batu Caves to Port Klang (17%), possibly due to the distance and time of the journeys. Only 43% of respondents has intercepted during journeys from KL Sentral to Batu Caves due to the short journeys involved. The majority of the respondents were home-based journeys (48%) while homebound journeys recorded to be some 35%. Similarly, journeys made from workplaces and education institutions are 19% and 15% respectively while journeys to workplaces and education institutions are 17% and 7% respectively. These three types of journeys and three main activities are the reasons why KTM Komuter patronized by young and commuting riders. Access modes to the station are pedal power (walking 27%), family's or friends' vehicle sending the passengers (21%), own cars (19%) and feeder buses (18%). Meanwhile, egress modes to final destinations are pedal power (walking 33%), family's or friends' vehicle fetching the passengers (25%), feeder buses (15%) and other connecting train systems. It can be seen that private vehicles are highly accessible; therefore, it may implicate the rates of ridership.

4.4. Passengers' perception of KTM Komuter's substitutional mode availability

Passengers are able to substitute KTM Komuter trip for other modes on almost all days of the week. Driving personal vehicles, using other rail systems, riding the buses, and motorcycles can substitute trips made by some 56% to 60% trips on Mondays through Fridays. The highest substitution availability is on Fridays with only 38% of riders being captive. Some 18% of KTM riders used the park and ride facilities. This indicated that parking at a station is not as significant as finding a space for parking. Majority (73% and 79% respectively) had no problems with parking fee rates and safety levels in parking areas.

4.5. Passengers' perception of KTM Komuter's levels of services

During peak periods, only 53% of the respondents were able to board the first train. In the morning peak period, some 60% were only able to board the second train services while another 36% had to wait for the third train to resume their journeys. The evening peak periods, the situation becomes worsened. Some 51% had to board the second train while some 43% had to wait the third train to continue with their journeys.

Approximately 78% of respondents have experienced delays in the last year (2010-2012) trips. Excessive waiting time is beyond one interval of train frequency (50 minutes). From the 78% who revealed that they experienced delays some 87% recalled receiving information about the delays. From this group of respondents, (87% / 78%) the majority (94%) stated that the delay information conveyed through the public announcement system while some 37% sought the display message signs for information relating to delay. The majority of those who experienced delay had waited for the trains to resume to its regular services. During peak periods, users' surveyed perceived waiting time was higher than those off peak periods. These users perceived that they waited for a range of 30 minutes to 120 minutes during these periods.

Service performance on a regular week evaluated based on user's own defined. Regular trips with train arrival and departure defined as on time or within 5 minutes of published schedule. Some of 19% agreed

that they experienced this regular trip for all day in a typical week. However, 8% of respondents said that trains delayed more frequently on Fridays of the regular weeks. Some 9% respectively indicated delays occurred more frequently during weekends of regular weeks.

Therefore, a minority of 3% perceived that services to be more frequently cancelled on all days of a typical week. Approximately (26% to 30%) of respondents perceived that trains were running on a frequency of 15 minutes while less (16% to 21%) believed that trains run on a frequency of 30 minutes.

5. Discussion and recommendations

This study found to be consistent with the previous where users were unsatisfied with the service quality provided by the KTMB especially in terms of train punctuality and frequencies. 78% of respondents revealed that they experienced delays and waited for a range of 30 minutes to 120 minutes during these periods. The excessive waiting time is beyond one interval of train frequency. Furthermore, the variation of train arriving and departing times from schedules shows low level of service punctuality.

Since the KTM Komuter services were found to have high demand, the existing capacity should be expanded. It is also imperative to maintain the existing rolling stocks, with regular and frequent repair and overhaul schedules to ensure that each train set perform its best services in timely manner.

Furthermore, it is recommended that train frequencies be increased from the current 30 minutes headways to 15 minutes headways. Operators can also increase train services frequency during peak hours and weekends. Additionally, published train schedule or timetables should be adhered to as strictly as possible. Any anticipated delays or departure from the planned schedules must be informed and disseminated in a timely and appropriate manner to the stakeholders and passengers.

The operators can increase performance quality and other relevant services by dealing with passengers' complaints and feedbacks. First, it is important to provide clear announcement and update information at platform, station and on-board trains. Second, more detailed, accurate and timely information should be disseminated and displayed.

6. Conclusion

This study has deliberated on the issues and problems faced by travellers. Multimodal public transport users have been selected as samples to experience, first hand, the systems of three cities, quality and quantity of which can differ from those of Malaysian public transport systems. The data collected and analyzed proved that many improvement areas can be suggested to operators and regulators of public transport systems, in general, and rail system, specifically. In essence, this study has contributed towards priority areas and phasing of strategies for KTM Komuter services in Klang Valley, Malaysia between the next couple and ten years time period.

As a conclusion, heavy-rail transportation system should be evaluated and assessed within a wider context when the whole systems of public transportation in Kuala Lumpur, Malaysia become more comprehensive, integrated and coordinated, to ensure increased the number of public transportation journeys, shifted from many of the less efficient trips made by the private modes. If Kuala Lumpur or Malaysia is to achieve the vision 2020 of being a developed nation by that year, one of the key improvement areas is the more advanced, smooth, connected and coordinated road- and rail-based public transportation system, capable of attracting more patronage, thus ensuring a more sustainable economic and social growth propagated by the Sustainable Development concept.

Therefore, more research is needed in areas such as: Identification of other types of issues and problems associated with KTM Komuter and Keretapi Tanah Melayu Berhad services, such as obsolete physical and rolling stocks, irregular and ineffective locomotive and rail-cars repairs and overhaul

services, low morale among staff and workers of KTM Komuter operational services as well as the fragmented regulation and monitoring of public transport services in Kuala Lumpur, Malaysia. The evaluation of services performances, apart from capacity, scheduled departure and arrival of rail services and passengers' perception of satisfaction levels. These performances of service provision included route expansion, irregular and anomalies of departure and arrival rail services, expansion of passenger catchment areas, successful integration of interchanges facilities (stations/termini) and ticketing systems.

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References

- Behwal R., and Behwal S. (2010). Public Transportation Services in Oman: A Study of Public Perceptions, *Journal of Public Transportation*, Vol. 13, No. 4: 2010
- Dridi, M., K. Mesghouni, and P. Borne. (2005). Traffic control in transportation systems. *Journal of Manufacturing Technology Management* 16 (1): (pp. 53-74)
- KTM Komuter; <http://www.ktmkomuter.com.my/> Lester Kong, 2010; <http://klnportal.kln.gov.my> Ministry of Transport (2011 & 2012)
- Road Transport Department Malaysia (2011)
- Shwarcz.S (2003). *Public Transportation in Malaysia*: (pp. 1-24)
- The Malay Mail. (2009, April 11). Fed up with KTM Komuter delays. Retrieved May 28, 2011. www.malymail.com.my
- Thompson, K. Schofield, P. (2002). *Total Quality Service. A simplified Approach to Using the Baldrige Award Criteria. Kuala Lumpur*: First Agency Press
- Tran, T., and B. H. Kleiner. (2005). Managing for Excellence in Public Transportation. *Management Research News* 28(11/12): (pp. 154- 163)
- Utusan. (2008, August 25). Utusan Malaysia Online. Retrieved January 15, 2009, www.utusan.com.my
- Zaherawati Z., Zaleha H., Mohamed Fajil AB., and Zuriawati Z. (2010). Service Quality of Malaysian Public Transports: A Case Study in Malaysia, *Cross-Cultural Communication*, Vol. 6, No. 2: 84-92