



Survey on Quality of Services (QoS) at Larkin Central Terminal (LCT), Johor Bahru

Noor Irdiana Ngadiman¹, Nuur Fathin Roslan², Fauziah Abdul Rahman³, Faradina Ahmad⁴, Mimi Suriani
Mat Daud⁵, Rozelin Abdullah⁶

¹Department of Industrial Logistics, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

²Department of Industrial Logistics, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

³Department of Industrial Logistics, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

⁴Department of Technical Foundation, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

⁵Department of Industrial Logistics, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

⁶Department of Industrial Logistics, Universiti Kuala Lumpur, Malaysian Institute of Industrial Technology

ABSTRACT

Terminal play as an important role in transportation, especially in public transportation to provide a safe and convenient place for the people as a transshipment point before delivered to the end of the destination. In Larkin Central Terminal (LCT), public transportation terminal widely uses to provide a various activity which is not limited into the bus operation but also as a business area. In the conjunction with that, some of the terminal user is not directly used to a main terminal operation so this will lead to the congestion in most days. Therefore, the purpose of this research is to investigate the existing quality service level in LCT, to investigate the user satisfaction level as well as the possibility of an improvement the quality services or facilities needed for LCT in the future. To meet this objective, the researcher is distributing 217 questionnaires based on three (3) categories of the target population at LCT. At the end of the paper, the researcher will discuss about the Quality of Service (QoS) in LCT and proved that the percentage level of user satisfaction towards the quality of terminal facility is insufficient.

Key words: Quality of Services (QoS), Larkin Central Terminal (LCT), public transportation, satisfaction.

1. INTRODUCTION

Larkin Central Terminal (LCT) is located in a town of Larkin under Johor Bahru City Council, which is a main bus terminal in Southern of Malaysia. The operations services are widely used around Malaysia consist of intracity and intercity journey. There is a combination building of wet market and the bus terminal where the purpose is not merely on the bus operation, but also the business area to serve people around the terminal such as visitor, and residential. The LCT was

designed as a double story building with three levels were on the first floor is for a bus service area such as bus platform, ticketing counter and waiting area. Meanwhile, on the second and third floor is located of retail shops, mosque as well as a food court area. The terminal was fully managed by Larkin Central Management with thirteen of staffs where most of terminal operations are twenty four hours working a day. The management also has to maintain a rental shop with total 800 units including a wet market. On the terminal operation, it was approximately 16,800 people comes to LCT per day with 26 bus operators and 44 units ticketing counter covering local, express and international bus services [1]. There are four types of platform with 48 units bays known as type A, B, C and D where most local, express and international bus is located as well as holding bus area. In terms of taxi services, the new area has been allocated behind an LCT in October 2014 were 4 categories of taxis are operate includes red taxi (economy), blue taxi (exclusive), long distance taxi and Johor Bahru to Singapore taxi. In order to meet the objectives, the specific variables are being proposed for this research.

2. LITERATURE REVIEW

2.1 Transportation

Now days, access to transportation is very important for older adults as it allows them to lead an independent and explore the social life [2]. According to [3], transportation services transports worldly goods of a user or the user which is as passenger from one location to another upon applying the available means and know how. Transportation play an important role in influencing human daily activities, regardless of age, the need and demand for transportation is crucial in determining the day to day movements. For the middle class to high income earners, surely the capability to have their own automobile is within their reach, but for the lower income who can't afford such, they will solely rely and depend much on public transit from their point of origin to their desired destination as such going to work, business

purpose, attending medical appointment as well as for the leisure time activities. However, in attracting the targeted and potential public transportation user, such services like bus and terminal operator not just to exist based on low quality benchmarking, but to strive and provide for efficiency and high quality service provider. The terminal is an important place where passengers will concentrate to use the bus service and dispersion when they have arrived to destination. In addition, the terminal also as a center where passenger can buy the ticket and at the same time as a waiting place for them while waiting for the bus.

2.2 Service Quality

Service quality is defined as a comparison between customer expectation and perception of service [4]. Quality service is more difficult to define compare to product quality. Service quality can be measured regarding to several dimensions such as tangibles, service reliability, responsiveness, assurance and empathy. Commuter perception of service quality at terminal varies for difference service delivery environment due to difference urban setting such as like land use purpose, traffic system, location and road characteristics, level of accessibility, fare structure, past experience from service providers and their delivered assessment [5]. Service quality can be measured in term of tangibility, reliability, responsiveness, assurance and empathy.

Table 1: Service Quality Measurement Dimension

Measurement	Definition
Tangibles	The physical appearance of the service facility, the equipment, the personnel and the communication materials.
Service reliability	Related to the ability of the service provider to perform promise service dependably and accurately.
Responsiveness	The willingness of the service provider to be helpful and prompt in providing service.
Assurance	Refer to the knowledge and courtesy of employee and their ability to inspire trust and confidence.
Empathy	Customer desire, caring, individualized from the service firm.

2.3 Customer Perception on Quality Service

According to [5], difference in user perception of service quality among different individuals because of the difference in socioeconomic and demographic characteristics, different travel habits and needs, different service delivery environments, different expectations of service levels and different experience with existing service providers. It's always bear in mind that the user perception "customer are the sole judge of service quality". Therefore, while designing

any transit services, it is essential to determine the commuter perception of service quality and their preferences.

The customer commonly has direct involvement in the delivery of the service and at the same time it also adds an uncertainty to the process due to difficulties in determining the exact customer requirements and what they presume as the minimum acceptable standard of service.

This problem is amplified by the fact that, standards are often judgmental, it's grounded based on personal preferences or even mood, instead of on technical performance that can be quantified. This has reflected the result that even such service completely satisfied a customer yesterday, however, the exact same service may not do so today because influences by the mood of the customer.

2.4 Bus Service Quality

Bus is a one of public transport, for a country that has a good quality service of bus operation, most of the citizens they prefer to use the bus service rather than using their own private vehicles. Based on [7], the choice of public transport as a preferred mode of travel by travelers in the city is mainly influenced by quality of bus operation services. Previously, users were satisfied with basic services and the availability of routes and the location of services. However, transit users today are more demanding from the bus providers, including fast and reliable service, shorter walking distance to stops, low floor buses, cheaper fare service and friendly safe drivers. Bus operators are responding to such demands with the aim to increase their number of customers and their company brand image. A high bus quality services may be defined using various attributes that cover items such as service coverage, frequency of services, hours of services, and service reliability. Customer satisfaction survey and expectation surveys in particular are the best methods conducted to measure the bus quality service. From the survey, any lack in bus service or performance can be determined and improved directly.

In order to serve a better service, the bus operators can make a survey of their customer towards their services. This service can give a several benefit to the operator such as increase the customer demand, reduce the operation cost, reduce passenger downturn, enhance their reputation and reduce the failure cost. Transportation Research Board (TRB) has highlighted specific criteria that can be used to measure passenger satisfaction regarding to bus quality service. The criteria are:

- a) Reliability - Consistency of performance and dependability.
- b) Responsive - Willingness or readiness of employees to provide service. It involves a timeline of service.
- c) Competence - Possession of the required skill and knowledge to perform the service.
- d) Access - Approachability and ease of contact.

- e) Courtesy - Politeness, respect, consideration and friendliness of service operator.
- f) Communication - Keeping passengers informed in a language they can understand and listening to them. Bus operator may have good communication skill with different level of bus user.
- g) Credibility - Trustworthiness, believability and honesty.
- h) Security - Freedom from danger, risk or doubt.
- i) Understanding / knowing the Passenger - Understand the need of a passenger.
- j) Tangibles - Physical environment and representations of the service.

In order to accommodate the high demand for more public transportation, there is a need to establish attractive, safe, and highly sophisticated public transportation system [8]. The public transportation system must attract sufficient commuters from individuals who have the option of traveling by car. On the other hand, customer satisfaction is an important tool to measures any kind of services provided. According to [9], customer satisfaction is the main criteria to measure the success of any public services. Customer satisfaction is considered a proxy for organizational performance of a public service provider and it act as core variable of marketing that strongly influence the impact of any product and services.

2.5 Factor Affecting Bus Ridership

The increasing of urban population and reaching the growth of urban areas to the peripheries of cities can cause inefficient use of capacity and decrease the level of service quality of public transportation. Insufficiency in public transport is also a factor that increases the use of private transportation in the city, the most cost effective ways of resolving the problem cause of traffic is canalizing the transportation user to the public transportation [10].

There are two types of factors, shown in Table 2, that can affect the public bus ridership, the first one is an external factor that is given a direct supply to transit demand and supply and the second factors is internal factors that’s is related to the bus operator itself [7]. For external factor, it refers to a country economic condition such as the fuel price, road congestion and parking space that has not had any relationship with bus operator, but for internal factor it has a direct relationship with the bus operator. Bus operator service quality can be a main factor that can attract passenger to use the bus services in term of its specific criteria such as accessibility, availability and reliability. In addition, fare pricing level is another example that has been highlighted by previous researchers such as Taylor and Fink that have an effect on public readership.

Table 2: Factors that affect public transit [7]

External Factors	Internal Factors
➤ Population Characteristics	➤ Route design
➤ Economies	➤ Service schedule and design
➤ Cost and availability of alternative mode	➤ Service reliability
➤ Land use	➤ Accessibility features
➤ Travel conditions	➤ Parking availability (Park and Ride)
➤ Public policy	
➤ Fares level	

3. RESULT AND DISCUSSION

This research is managed to distributing 217 questionnaires based on three (3) categories of the target population at LCT. The sample size was calculated based on 90% significance level. The results for sample size of three different groups are shown in Table 3.

Table 3: Details of sample size and population public users in LCT

Details*	Population (N) (Pax)	Sample size (n)
Visitors & Passengers	16,800 per day	99
Bus operators	44	30
Shop Tenants	800	88
Total	17,644	217

3.1 Respondent’s Satisfaction

The summary of respondents’ satisfaction has been carried out using Correlation Analysis Method. By listing the highest rating for ‘Very Dissatisfied’ and ‘Very Satisfied’, this case study is analyzed by using rating ‘Very Dissatisfied’ and quality of services as dependent variables.

Table 4: Correlation Statistics between Transport Mode (Bus), Internal and External Environment (Bus Platform Level)

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.075	.078	-.848	.398 ^c
Ordinal by Ordinal	Spearman Correlation	-.100	.084	-1.128	.261 ^c
N of Valid Cases		129			

Correlation statistic reveals signifying relation between transport mode (bus) with bus platform level (Internal and External Environment) at the 95% significance level. The relationship for above Table 4 is 0.26 and its show weak relationship. This is because, limited space on buses holding bay due to waiting queue to enter the platform. The correlation analysis relation between gender with seat at waiting area (passenger comfort) also shows that the relationship is 0.302 and it is weak relationship. The men passengers seem not gentle to offer their seat to women passengers.

4. CONCLUSION

The study of Quality of Service (QoS) in Larkin Central Terminal (LCT) had approved the percentage level of user satisfaction towards the quality of the terminal facility. It is defined that critical quality of services could affect the passenger mood and terminal user. Moreover the study recommended many suggestions and actions to improve terminal condition beyond the case study that will support in fulfilling the user desired condition of terminal facilities in Malaysia. The recommendations that can help LCT to improve are such as establish the official website for LCT, place the complaint box at hot spot area, the terminal must equip with adequate lighting, CCTV and Auxiliary Police.

In the view of passenger's comfort, this research has found that the size and the number of toilet not enough, do not have social facilities, waiting area, fully air conditional and also free wifi. In addition, LCT needs to improve in terms of user's information which is to display route electronic digital board and e-ticketing machine. Since drivers play an important role in the terminal, driver union, driver lounge and provide a driver training centre also can be one of the attractions to the drivers

REFERENCES

1. Bibliography: Larkin, (2015). Larkin. [online] Available at: <https://www.google.com/maps/place/Larkin,+Johor,+Malaysia/@1.4921315,103.7368443,15z/data=!3m1!4b1!4m2!3m1!1s0x31da6d5c6ff1976f:0x539ceadff6e9cb78> [Accessed 24 Apr. 2015].
2. Rahman, M. M., Deb, S., Strawderman, L., Smith, B., Burch, R. (2019). **Evaluation of transportation alternatives for aging population in the era of self driving vehicles.** *IATSS Research*- In Press. <https://doi.org/10.1016/j.iatssr.2019.05.004>
3. Matijosius, J., Vasiliauskas, A. V., Vasilienc, V., Krasodomskis, Z. (2016). **The Assessment of Important of the Factors that Predetermine the Quality of a Service of Transportation by Road Vehicles.** *Procedia Engineering*, 134, pp. 422-429.

4. Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1985). **A conceptual model of service quality and its implications for future research.** *Journal of Marketing*, 49(4), pp. 41-50
5. Pandit, D., Das, S. (2013). **A Framework for Determining Commuter Preference Along a Proposed Bus Rapid Transit Corridor.** *Procedi-Social and Behavioral Sciences*, 104, pp. 894-903. <https://doi.org/10.1016/j.sbspro.2013.11.184>
6. Foster, S. (2007). **Managing quality.** Upper Saddle River, N.J.: Pearson Prentice Hall.
7. Munzilah, R., Wijeyesekera, D., Karim, A. (2013). **Bus Operation, Quality Service and The Role of Bus Provider and Driver.** *Procedia Engineering*, 53, pp. 167-178. <https://doi.org/10.1016/j.proeng.2013.02.022>
8. Shaaban, K., Khalil, R. F. (2013). **Investigating the Customer Satisfaction of the Bus Service in Qatar.** *Procedia-Social and Behavioral Sciences*, 104, pp 865-874. <https://doi.org/10.1016/j.sbspro.2013.11.181>
9. Hamzan, H., Ayub A. M. A., Hilmi, M. F. (2015). **User Satisfaction of Public Transport: An Exploratory Study in Penang, Malaysia.** *International Journal of Business and Innovation*, 2(4), pp. 1-14.
10. Deri, A., Kalpakci, A. (2014). **Efficient Usage of Transfer based System in Intracity Bus Transit Operation: Sample of Izmir.** *Procedia - Social and Behavioral Sciences*, 111, pp. 311-319. <https://doi.org/10.1016/j.sbspro.2014.01.064>