

PEDESTRIANS' PERCEPTION OF THE SIDEWALK FACILITIES IN KUALA LUMPUR'S COMMERCIAL AREAS

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ABSTRACT

Walking is an activity that supports other mode of transportation because every journey starts and ends by walking. To encourage walking among people, pedestrian sidewalk facilities should be comfortable to be used by the pedestrian and in good condition. A questionnaire survey was carried out in the Kuala Lumpur's commercial areas in order to assess the pedestrians' perception of the existing sidewalk facilities. The pedestrians travel experience while using the sidewalk facilities and the pedestrian opinion towards the sidewalk condition were assessed by means of questionnaires surveys. It was found that safety is the most important factor for both the younger and elderly pedestrians. The elderly are most affected by the sidewalk condition. This group of people appreciates more on the aesthetic and amenities provided to them compare to other group of pedestrian. In conclusion, most of the pedestrians do not satisfied with the existing condition of the sidewalk facilities. Suggestion for improvement should be made especially in the sidewalk and crossing.

Keywords: *sidewalk, pedestrian perception, pedestrianisation, pedestrian facilities, pedestrian travel behavior*

INTRODUCTION

Kuala Lumpur is the most populous state capital in Malaysia with the estimated population of 1.6 million and covers an area of 243 km². In terms of population and economic growth, Kuala Lumpur is the fastest among other metropolitan region within the country. In order to support the economic growth of Kuala Lumpur, Draft KL City Plan 2020 has identified commercial areas in key urban center. These key urban centers are in line with the distribution of urban center by the Kuala Lumpur Structure Plan 2020 known as City Center Commercial (CCC). These CCC is a commercial zone that allows broad range of commercial activities to be conducted towards pioneering highest commercial activities order (DBKL, 2004).

However, current city center is not a pedestrian-friendly city due to its lack of pedestrian linkage and existence of major deficiencies such as poor maintenance, inefficient design and poor accessibility. Besides that, the local and foreign visitor often find deficiencies in the pedestrian sidewalk facilities that are physically challenging to the disabled and the elderly. Unlicensed vendor and hawkers using the pedestrian sidewalk for their business purpose and some building prohibit public access across their property worsen this scenario (Rahaman et. al., 2012).

Walking is considered as one of the oldest non-motorized mode of transportation. Before other modes of transportations such as carts, horses, cars and etc. are invented, people used to travel by walking. Every person who travels from one place to another is pedestrian and every pedestrian is an element of road space (Leong, 2011). The quality of the path context in the network are important criteria that can affect the likelihood of walking (Jaskiewicz, 2000; Lotfi & Koohsari, 2011; Southworth, 2005; Xi & Son, 2012) However when it comes to urban transportation

planning, the provision of pedestrian facilities are usually neglected despite the undeniable importance of the pedestrian (Shah, 2010; Zaly, 2010). Only minimum facilities are provided for the pedestrian in some areas. Pedestrian are among the most vulnerable of all road users. Pedestrians are usually exposed to accident risks, adverse weather, snatch thieves and other hazard which make people tend to avoid travelling by walking in long distance. Inadequate pedestrian facilities cause constant conflict between the pedestrians and the vehicles on the roadway between pedestrian and another pedestrians, parked vehicles and with roadside development (Laxman et al, 2010).

Fortunately, government have identified the problem and come out with initiatives to reduce the problem. Currently, a programme has been initiated between Dewan Bandaraya Kuala Lumpur, DBKL and private sector to upgrade the existing pedestrian network as shown in Figure 1. These sector planned to construct a total of 4.5 km of covered and elevated pedestrian linkage in the city center within 2012 for short term and a total of 45 km full pedestrian network across KL city for long term plan and is expected to be completed by 2014. (KWPKB, 2011)

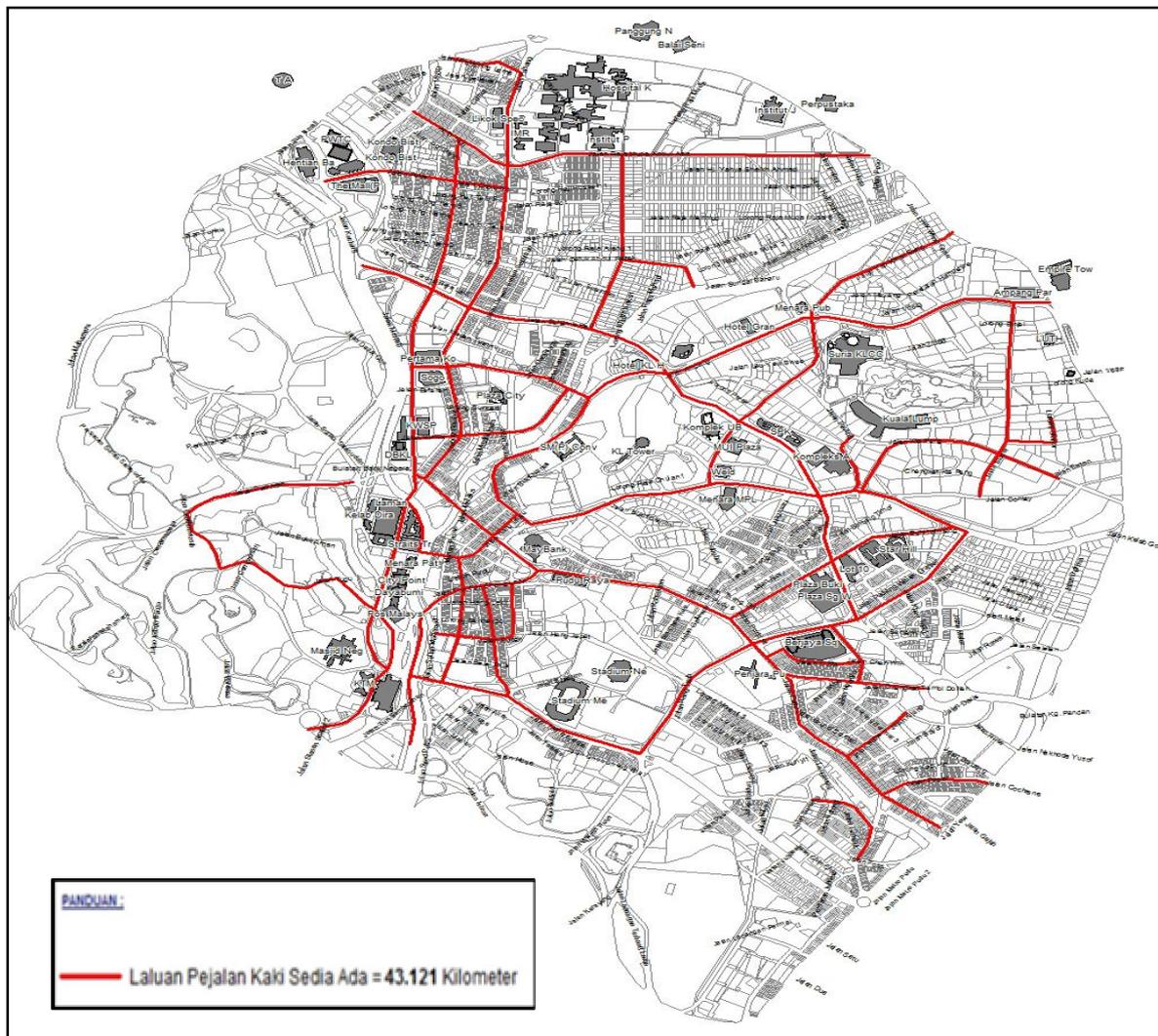


Figure 1: Existing Pedestrian Network in Kuala Lumpur

The government is aware of the importance of pedestrianisation towards increasing the economic development in Malaysia. Aside from the above development, there has been a gradual pedestrian facilities improvement in the newer building but the existing facilities remain the same or very little improvement is done. Therefore, a more progressive pedestrian network is implemented in the commercial city center by giving priority to pedestrian movement rather than cars. People tend to walk further and more frequent if the high qualities sidewalk facilities provided to them (Kelly et al, 2011: Gardner et al, 1996 : Sosiopiku and Akin, 2003) Enhancement project such as the provision of safer road crossing, sidewalk widening, removal of high kerb obstacle, tree planting for landscape treatment and other enhancement project have been initiated to promote and facilitate pedestrianisation (DBKL, 2004). The objective of this paper is to assess the pedestrians' perception and preference towards various existing sidewalk facilities in Kuala Lumpur. This research can help the transport planner and facilities provider to understand how the users felt when using the facilities. Therefore, optimum facilities can be provided to the pedestrians. When optimum facilities provided, the number of pedestrian will increased and these can help to increase the walkability and foster towards pedestrianisation in the city of Kuala Lumpur.

METHODOLOGY

The assessment of the pedestrians' perception was conducted by means of on-street questionnaire survey. The questionnaire survey parameters include the continuity of the sidewalk, surface condition, physical obstruction, facilities for the elderly and disabilities, protection against weather condition, personal safety while using the sidewalk, aesthetic and amenities, sidewalk cleanliness, maintenance and overall travel experience. The location of the study is in the commercial area of Kuala Lumpur, and the study population consists of shoppers, shopping in the commercial area. Therefore, the pedestrian travel purpose and frequency may influence their perception and expectation towards the sidewalk condition (Rahaman et al, 2012). In this research, a total number of 50 respondents were involved and the respondent were divided equally into two groups which are 25 respondent for age range between 19 – 49 years old age range and 25 respondents of age above 50 years old. The age variation may be closely related to the income, occupation, sex and other socioeconomic factors.

On-street Questionnaire Survey

The method that was used in this research was a paper-based on-street questionnaire in order to assess the perception or the pedestrian's view that was walking on the study site within the commercial area of Kuala Lumpur. The interviewer waits at the end of the sidewalk and aim at the selected pedestrian who walk from the beginning of the sidewalk towards the end. When the pedestrian reaches the end of the sidewalk, the pedestrian was interviewed and asked to participate in the questionnaire survey. The questions in the questionnaire were designed based on the parameters selected as stated above and presented in a Likert Scale. In order to assess on the pedestrians' perception, the pedestrians were asked to rate the sidewalk condition and their overall impression of their travel experience along the sidewalk. The respondents were also asked on what are the key factors that influenced their decision to walk and give suggestions or improvements that they would like to see on the existing sidewalk. Besides that, this method allows a large sample of pedestrian views regarding the pedestrian sidewalk attributes to be collected over a short period of time and the results can be collated so that the pedestrian facilities improvement key factor can be identified.

Data Analysis

The questionnaires survey was analyzed by converting the pedestrians’ perception responses to weighted score. The weighted score is calculated by multiplying the numbers of respondent involved to the weighing factor. Weighing factors and examples of “weighing scoring” for the questionnaires surveys are shown in Table 1. The average weighing score is calculated by dividing the total weighted score with the number of respondent involved in the survey. In order to avoid confusion from decimal point and for clarity purposes, this score is then adjusted by multiplying it with 100. The negative (-ve) value indicates that the respondent is not satisfied with the existing sidewalk and the positive (+ve) value indicates that the respondent is satisfied with the existing sidewalk. Whereas, the values that are approaching to zero (0) indicate the sidewalk condition is acceptable.

Table 1: Weighted Factor & Calculation Example for Sidewalk Condition and Overall Travel Experience

Scale of Agreement	Weighing Factors	No. of Respondents	Weighted Score
Satisfactory	1	7	7
Acceptable	0	8	0
Unsatisfactory	-1	5	-5
Total			2

RESULTS AND DISCUSSIONS

Pedestrian Perception on the Existing Pedestrian Sidewalk

When it comes to assess is the pedestrian perception, the elders are not satisfied with the existing sidewalk condition compared to the younger pedestrians. Table 2 shows negative (-ve) value for almost all of the sidewalk attributes with the highest negative value for the facilities for the disabled/elderly. This shows that the elderly felt that there are no special sidewalk facilities provided for them despite of their physical limitation. However, the elderly felt that the road width is sufficient enough for them to travel which is indicate by the only positive (+ve) value. The elderly was also not satisfied with the overall impression and travel experienced while travelling on the road. Table 3 shows the results for the elderly overall impression and travel experienced.

On the other hand, the younger pedestrian which is between the age range of 19 – 49 years old also have the same perception on the pedestrian sidewalk except that the total values were much lower than the elderly’s value. This means that there are more pedestrian that consider the sidewalk as acceptable or satisfied with the condition. It can be seen that other than sidewalk width, these groups of pedestrian appreciate the presence of the sidewalk that is indicated by positive (+ve) value in Table 4. They were also satisfied with the overall travel experience and overall impression of the sidewalk as shown in Table 5.

Table 2: Score Results for Above 50 years Old Pedestrian Perception on Sidewalk Condition

No	Attribute	Total Weighted Score	Average Weighted Score	Adjusted Weighted Score (X100)
1	Presence of Sidewalk	-3	-0.5000	-50.00
2	Location of sidewalks	-1	-0.1667	-16.67
3	Continuity of sidewalks	-3	-0.5000	-50.00
4	Sidewalk width	1	0.1667	16.67
5	Levelness and condition of sidewalk	-1	-0.1667	-16.67
6	Obstructions	-3	-0.5000	-50.00
7	Curvilinear curbs or curb cuts	-4	-0.6667	-66.67
8	Condition of the walking surface	-5	-0.8333	-83.33
9	Cleanliness of the sidewalk	-5	-0.8333	-83.33
10	Protection from weather	-5	-0.8333	-83.33
11	Facilities for the disabilities/elderly	-6	-1.0000	-100.00
12	Separation from traffic	-5	-0.8333	-83.33
13	Personal safety while using the sidewalk	-4	-0.6667	-66.67
14	Personal safety against the adjacent traffic/parked vehicle	-5	-0.8333	-83.33
15	Maintenance of the sidewalk	-2	-0.3333	-33.33
	Total Score		-8.5000	-850

Table 3: Score Results for Above 50 years Old Pedestrian Perception on Overall Impression and Travel Experience

No	Attribute	Total Weighted Score	Average Weighted Score	Adjusted Weighted Score (X100)
1	Overall Travel Experience	-4	-0.6667	-66.67
2	Pathway / Sidewalk	-3	-0.5000	-50.00
3	Crossing	-4	-0.6667	-66.67
4	Street Furniture	-4	-0.6667	-66.67
5	Personal Safety	-4	-0.6667	-66.67
6	Adjacent Traffic	-5	-0.8333	-83.33
7	Aesthetics and Amenities	-5	-0.8333	-83.33
	Total Score		-4.8333	-483.3

Table 4: Score Result for 19-49 Years Old Pedestrian Perception on Sidewalk Condition

No	Attribute	Total Weighted Score	Average Weighted Score	Adjusted Weighted Score (X100)
1	Presence of Sidewalk	1	0.0714	7.14
2	Location of sidewalks	-1	-0.0714	-7.14
3	Continuity of sidewalks	-1	-0.0714	-7.14
4	Sidewalk width	4	0.2857	28.57
5	Levelness and condition of sidewalk	-2	-0.1429	-14.29
6	Obstructions	-4	-0.2857	-28.57
7	Curvilinear curbs or curb cuts	-2	-0.1429	-14.29
8	Condition of the walking surface	-4	-0.2667	-26.67
9	Cleanliness of the sidewalk	-6	-0.4286	-42.86
10	Protection from weather	-10	-0.7143	-71.43
11	Facilities for the disabilities/elderly	-12	-0.8571	-85.71
12	Separation from traffic	-4	-0.2857	-28.57
13	Personal safety while using the sidewalk	-2	-0.1429	-14.29
14	Personal safety against the adjacent traffic/parked vehicle	-8	-0.5714	-57.14
15	Maintenance of the sidewalk	-3	-0.2143	-21.43
	Total Score		-3.8381	-383.81

Table 5: Score Result for 19-49 Years Old pedestrian Perception on Overall Impression and Travel Experience

No	Attribute	Total Weighted Score	Average Weighted Score	Adjusted Weighted Score (X100)
1	Overall Travel Experience	2	0.1429	14.29
2	Pathway / Sidewalk	1	0.0714	7.14
3	Crossing	-6	-0.4286	-42.86
4	Street Furniture	-4	-0.2857	-28.57
5	Personal Safety	-1	-0.0714	-7.14
6	Adjacent Traffic	-4	-0.2857	-28.57
7	Aesthetics and Amenities	-3	-0.2143	-21.43
	Total Score		-1.0714	-107.14286

Pedestrian Expectation

In order to assess on the pedestrian perception and expectation, the pedestrian was asked on the most important factor that influences their travel decision and what are the improvement needed to improve the sidewalk facilities. The results for elderly pedestrian were presented in Figure 2 and the results for younger group of pedestrian were presented in Figure 3. Surprisingly, Figure 2 shows that even though safety influences their walking decision the most, they felt that less improvement were needed compared to sidewalk, aesthetic and amenities. In the elderly opinion, they thought

that the pedestrian personal safety depends on individually hand. Improvements are needed for sidewalk and aesthetic and amenities because most of the elderly travelling purposes are for leisure or shopping. Therefore, the elderly depends on the facilities provided to them the most due to their physical disabilities. This is the reason almost all negative results were obtained for the pedestrian perception for this group due to high expectations and dependence on the facilities provided.

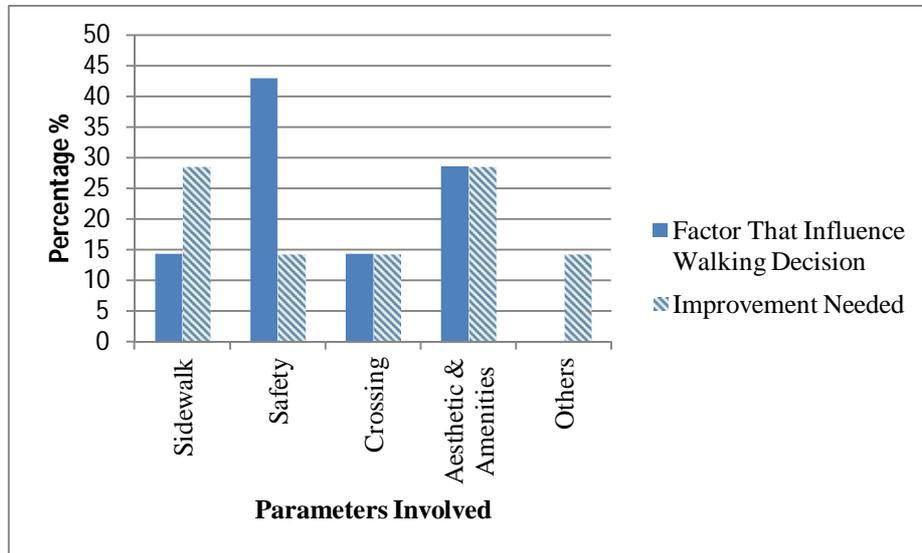


Figure 2: Elderly Pedestrian Perception and Expectation

On the other hand, almost half of the respondent in the age group between 19 – 49 years old concern about their safety while using the sidewalk including personal safety when crossing. This leads to the highest number of improvement needed for pedestrian crossing as shown in Figure 3. Besides that, the improvement needed for sidewalk remains as the second highest for this group. In contrast with the elderly expectation, younger group of pedestrian does not feel the needs of improvement for the aesthetic reason but they are more concern on the protection against weather condition and request for covered sidewalk. Since the younger pedestrian group does not have any physical impairments, they perception on the existing sidewalk condition and expectation are not as high as the elderly which is proven by the lower negative value in Table 4 and 5.

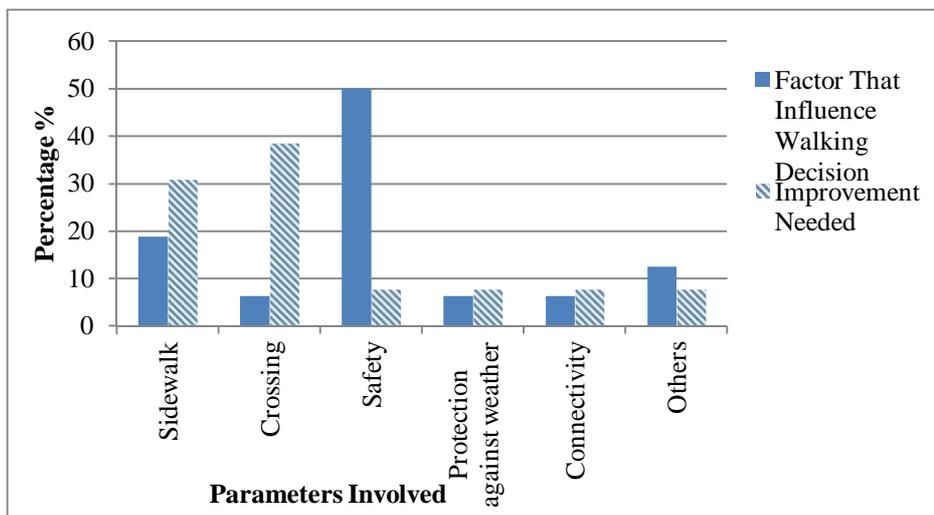


Figure 3: Younger Pedestrian Perception and Expectation

Most of the pedestrians from both groups have been using the sidewalk facilities for more than once when they were asked about their travel frequency. The pedestrians are aware about the sidewalk condition and also improvement that have been made for the past few years. Therefore, they give more positive expression and expect less improvement if compared to pedestrians that used the sidewalk only once. The first time users tend to compare the sidewalk condition to more developed country's sidewalk such as in Europe or England. The pedestrians that used the sidewalk more frequently will usually compare the sidewalk condition between past few years and currently.

CONCLUSION

The objective of this paper is to assess on the pedestrian perception and preference towards various existing sidewalk facilities by means of questionnaires survey. It is found that the elderly depends more on the facilities provided for them to travel whereas the younger pedestrian concern more on the safety. Besides that, the elderly were not satisfied for most of the existing sidewalk condition compared to the younger pedestrian. The pedestrian does not expect something extraordinary but would like to use the facilities comfortably and safely. Every pedestrian group has different expectation towards the pedestrian facilities. Some group of pedestrian would consider safety factor before travelling by the particular road, while others would prefer aesthetic and amenities provided within the street. The finding of this research is expected to help the planners and traffic engineers to understand the pedestrian perception and expectation towards pedestrian sidewalk facilities towards providing the optimum pedestrian facilities. When optimum facilities provided, the number of pedestrian will increased and these can help to increase the walkability and foster towards pedestrianisation in the city of Kuala Lumpur.

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