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USER'S PERSPECTIVE TOWARDS THE UTILIZATION OF PEDESTRIAN BRIDGES IN SELANGOR

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Abstract
Pedestrian bridges are one of the facilities provided for the pedestrians in Malaysia, each state in Malaysia is provided with pedestrian bridges to avoid unfortunate events such as accidents towards the pedestrians. Although the pedestrian bridges are provided, some of the pedestrians still does not utilize it well due to various reasons which resulted to pedestrian's accidents. The aim of this research is to promote the utilization of pedestrian bridges in Selangor. The objectives of this research which is (1) to identify the factors affecting pedestrian bridges utilisation and (2) to suggest ways to improve the utilization has achieved. The data collected from 51 respondents of pedestrians in Selangor regarding their opinion on factors hindering pedestrians from utilizing the pedestrian bridges and their suggestions of ways to improve the utilization of pedestrian bridges. Furthermore, the main factors and main suggestions have been identified in this research are (1) human behaviour, (2) location of pedestrian bridges, (3) safety features of pedestrian bridges and (4) pedestrian bridge's design. From the data analysed, this research has found that the most ranked factors and suggestions to the least, where both highest ranked factor and suggestion are related to the location which ranked first highest. It is suggested the study on the difference between utilization at specific location of pedestrian bridges with other certain location of pedestrian bridges.

Keywords: Pedestrian Bridges, Selangor, Utilization, User's perspective

1.0 INTRODUCTION

Pedestrian bridges are built to provide facilities to the pedestrians or for those who prefer walking instead of travelling using vehicle to their destinations. A lot of people making their daily trips by walking in order to avoid traffics. It is risky for them to walk to their destination if the pedestrian facilities did not exist. Pedestrian accidents usually occur where the areas have no crossing facilities for pedestrian to cross the road, Agah Muhammad Mulyadi (2018). By rank, pedestrian is consistently third after motorcyclists and car occupants while Malaysia recorded more than 500 pedestrian fatalities each year. Road accidents also are the third highest causes of deaths in Malaysia, World Health Organization (2018). JKR 2018 data stated that Selangor has the highest number of road accident amongst all state which is 163,078 in 2018 and 83,607 in 2019 from January till Jun. Steps taken to increase safety to pedestrians especially for them to cross the roads, a lot of facilities provided such as pedestrian bridges. One of the facilities provided for pedestrians is pedestrian bridges. The modern definition of the footbridge is that a vertical separation facility used to segregate pedestrians from vehicular traffic without being exposed to the risk of accidents and study revealed that the main reason for using the footbridge was that it is safer than other types of crossings, R. Hasan and M. Napiah (2017). According to News Straits Times (2018), twenty pedestrians have been killed crossing the roads of the nation's capital since January. The vast majority, involved those who crossed roads illegally, despite the presence of pedestrian bridges nearby. The news related to how there are still pedestrians who ignore the existence of pedestrian bridges and not utilizing the pedestrian bridges. As stated by Boon Hoe Goh, Kulanthayan Subramaniam, Yeong Tuck Wai, Abdullahi Ali Mohamed (2018), careless crossing by pedestrians are one of the main reasons that affect the increases of the number of pedestrian accidents. Therefore, the pedestrian bridges must be utilized in order to maximize its function which is to provide safety towards the pedestrians. The utilization of pedestrian bridges is low due to several factors and has not been identified which factor is the most important. Therefore, this research has achieved its outcome where the factor and suggestion are related to the location and ranked first highest.

1.1 Problem statement

Pedestrian bridges are built where it seems dangerous for the pedestrian to cross the road. But despite the facilities given, some of the pedestrians would cross the road without using the pedestrian bridges. According to News Straits Times (2018), twenty pedestrians have been killed crossing the roads of the nation's capital since January. The vast majority, involved those who crossed roads illegally, despite the presence of pedestrian bridges nearby. By rank, pedestrian is consistently third-ranked after motorcyclists and car occupants while Malaysia recorded more than 500 pedestrian fatalities each year. Road accidents also the third highest causes of deaths in Malaysia, World Health Organization (2018). Although it was the third ranked, it is chosen

because it gives impact towards human without vehicle such as the first ranked related to motorcycle and second ranked related to cars. JKR 2018 data stated that Selangor has the highest number of road accident amongst all state which is 163,078 in 2018 and 83,607 in 2019 from January till Jun.

Pedestrians will cause a traffic to the road users when they ignored the existence of pedestrian bridges. Aside from causing traffic, they are risking their lives when there are facilities provided to lower the chance of risks. Pedestrians make their own judgment whether to use the pedestrian bridge or cross the road illegally. According to R.Hasan and M. Napiah (2017), if it is possible and more convenient to cross the road at the grade, pedestrians will not use the footbridge, and a problem of safety threat will arise. By providing the pedestrian bridges, it does not mean that pedestrians would utilize it, therefore, their opinion on the pedestrian bridges are important in order to increase the utilization of pedestrian bridges. Pedestrians would rather ignore their own safety and choose to cross the road without using the pedestrian bridges as it is the quickest way to reach their destinations Hidaya and Kadzim, (2012).

2.0 LITERATURE REVIEW

Pedestrian Bridges are one type of pedestrian facilities which identified as overpasses. Which means way to cross the road is by going over it. According to Wikipedia, there are many names for this facility, such as footbridge, pedestrian bridge, pedestrian overpass or pedestrian overcrossing. 'Pedestrian bridges' are chosen to be used in this research. One of the facilities provided for pedestrians is pedestrian bridges. There are many types of pedestrian bridges, but the most common are the traditional bridges which one has to walk up the stairs and the modern bridges which escalators are installed instead of stairs. Most accidents happen is because of human error which is the driver not prioritize pedestrians, speed and lack of attention on road. Besides the driver's error, pedestrians also could be the causes of the accidents, such as lack of caution, ignoring the traffic, pedestrian bridges and facilities. More than 60% of pedestrians ignored the pedestrian bridges for varied reason which means pedestrian bridges efficiency is not effectives, Abojaradeh, (2016).

Human behaviour is one of the factors that affect pedestrian's action to utilize the pedestrian bridges or not. Pedestrian risk-taking attitudes and perceptions, pedestrian walking motivations are two strong factors amongst all other behaviours in the analysis by Eleronaora Ppadimitriou, Sylvain Lassarre, George Yannis (2017). The research confirms that human factors are important to determine the pedestrian behaviour as it have an impact on pedestrian walking and crossing behaviour.

Due to the length of the walking distance for the pedestrians to reach their destinations. The location of the bridge in relation to the origin and destination of the pedestrian route was a crucial element influencing the pedestrian's decision on using the bridge, Soltani A. and Mozayeni S. (2013).

The main factor which influence people in using the crossing are the conditions and quality of crossing area, Oliver Ling Hoon Leh, Zamila Zamri, Mohd Zamreen Mohd Amin and Marlyana Azyyati Marzukhi (2013). The Star (2018) stated that the pedestrians' complaint on how they feel towards the pedestrian bridge's uncleanliness and poor maintenance. Pedestrians also might be concern to utilize an old pedestrian bridge.

The number of steps and the unavailability of the escalator or lifts made the pedestrians feel unmotivated to utilize the pedestrian bridges, especially in urban area where pedestrians are in a hurry. R. Hasan and M. Napiah (2017) stated, Laziness and the much effort involved in ascending the stairs were the main reasons for not utilizing the footbridge.

3.0 METHODOLOGY

The method used to collect data is quantitative. Questionnaire method was chosen for this research data collection, this is because to obtain data from various pedestrians in Selangor. Since all respondents might have different thoughts towards the pedestrian bridges, to collect different answers in order to get the ranking for the highest to lowest factors of not using the pedestrian bridges, as well as the ranking for the highest to lowest suggestions in order to increase the utilization of pedestrian bridges.150 questionnaires are distributed by using Google Docs to pedestrian in Selangor and the method of sampling is simple random sampling. The links are distributed online through Whatsapp and other Social Media attracting only the pedestrians in

Selangor. This method can collect data in a short time period than other data collection methods. The respondents are varying, and all sections are answered by the respondents in order to get the data.

The data collected are transferred to the Statistical Package for Social Science (SPSS) software, in order to anaylse with appropriate tools provided in the SPSS. For the ranking data, it is more suitable to use the Friedman Test where it will come out with a descriptive statistic table which shows the frequency, mean, standard deviation, rank and test statistics. Friedman test is a non-parametic alternative for a repeated-measures ANOVA and it can be used for quantitative data. Data analysed are explained in ranking based on the method's result where the original variables are ranked within cases and resulted to mean ranks. The method also shows the Chi-Square where it explains the difference between mean ranks, the higher the number, the larger the difference. Therefore, this method are helpful when it comes to ranking data.

4.0 ANALYSIS AND FINDINGS

There were 150 questionnaires distributed to the pedestrians in Selangor and only 51 from them were collected which indicate 34% response rate. The collection of 51 gathered data by all respondents form the questionnaire are analysed using SPSS. More than half respondents (82.4%) have used the pedestrian bridges in Selangor. Therefore, their responds have provided valid opinions regarding the problem of the study and provide best solutions to increase the utilization of pedestrian bridges in Selangor.

4.1 Main factors on Utilization of Pedestrian bridges

Table 1. Main factors on Utilization of Pedestrian Bridges

Item	Descriptions	Mean	Std. Deviation	Ranking
1.	Human behavior	2.92	1.074	2
2.	Location of pedestrian bridges	3.10	.831	1
3.	Safety factors of pedestrian bridges	2.49	.967	3
4.	Pedestrian bridges design	1.49	.857	4

Table 1 shows the main factors on Utilization of Pedestrian Bridges, which the main factor 'location of pedestrian bridges' (mean=3.10, s.d= .831) are ranked first, while the main factor 'human behaviour' (mean= 2.92, s.d = 1.074) ranked as second. The third highest mean score are 'safety factors of pedestrian bridges' (mean= 2.49, s.d = .967), followed by the fourth rank which is 'pedestrian bridges design' (mean= 1.49, s.d = .857) which shows a slightly big different in mean score between the third ranked factor. Overall view of these main factors, all respondents give positive feedback for the main factors listed. This finding is slightly different from R. Hasan and M. Napiah (2017), where it was found that location of the pedestrian bridges is ranked second most important factor. Rasanen et. al (2007) finds that safety factors regarding the pedestrian bridges can be assumed as secondary factor after time loss for using the pedestrian bridges.

4.2 Suggestions on Utilization of Pedestrian Bridges

Table 2. Suggestions on Utilization of Pedestrian Bridges

Item	Descriptions	Mean	Std. Deviation	Ranking
1.	Human behaviour	2.35	1.214	3
2.	Location of pedestrian bridges	3.02	.812	1
3.	Safety factors of the pedestrian bridge	2.92	.935	2
4.	Pedestrian bridge's design	1.71	.986	4

Table 2 presents suggestions on Utilization of Pedestrian Bridges. The results obtained from the analysis shows that 'location of pedestrian bridges' (mean= 3.02, s.d = .812) could strongly increase the usage of pedestrian bridges. Meanwhile the suggestion 'safety factors of the pedestrian bridge' (mean= 2.92, s.d = .935) are ranked second. The next rank that will affect the utilization of pedestrian bridges are 'human behaviour' (mean= 2.35, s.d = 1.214). Further analysis shows respondent's support of the suggestion 'pedestrian bridges design' (mean= 1.71, s.d = .986).

This research study has analysed and found that the major factor of why pedestrians not utilizing the pedestrian bridges in Selangor are Location of pedestrian bridges, where location of the pedestrian bridges is not suitable

or not convenient. This finding is slightly different from R. Hasan and M. Napiah (2017), where it was found that location of the pedestrian bridges is ranked second most important factor. However, second ranked are considered as a high rank which shows the location factor does contribute to respondent's decision to utilize the pedestrian bridges or not. R. Hasan and M. Napiah (2017), Abrojadeh (2016), Ramadan et. al. (2018), Soltani A. and Mozeyani S. (2013), Rasanen et. al. (2007), H. Rizati et. al. (2013) and Papadimittriou et. al. (2016), supported that location of the pedestrian bridges are one of the main factors of the pedestrian's decision whether to utilize the pedestrian bridges or not.

The second highest ranked factor in this research study is human behaviour. Respondents have agreed that human behaviour are one of the highest factors. These findings are supported by several authors; Hasan and M. Napiah (2017), Abrojadeh (2016), Ramadan et. al. (2018), Soltani A. and Mozeyani S. (2013), Leh et. al. (2013), Rasanen et. al (2007) and H. Rizati et. al. (2013). However, Hasan and M. Napiah (2017) found that human behaviour are not the first ranked but still among the highest ranked.

The third ranked factor is safety factors of pedestrian bridges. These findings are supported by Hasan and M. Napiah (2017), Abrojadeh (2016), Ramadan et. al. (2018), Soltani A. and Mozeyani S. (2013), Leh et. al. (2013) and Rasanen et. al (2007). However, in Soltani A. and Mozeyani S. (2013) finding, only few of their respondents that concerned about the pedestrian bridge's safety factors. While Rasanen et. al (2007) finds that safety factors regarding the pedestrian bridges can be assumed as secondary factor after time loss for using the pedestrian bridges.

While the lowest ranked factor is pedestrian bridge's design. In this research study, respondents concern least about the pedestrian bridge's design. However, according to Hasan and M. Napiah (2017) finding, it was found that pedestrian bridge's design is ranked first as major factor for pedestrian not utilizing the pedestrian bridges. These findings are supported by Hasan and M. Napiah (2017), Abrojadeh (2016), Ramadan et. al. (2018), H. Rizati et. al. (2013), Sundrarajan et. al. (2018), Leh et. al. (2013), Rasanen et. al (2007).

5.0 CONCLUSION
This research has been carried out to identify each main factor affected the pedestrian decision to utilize the pedestrian bridges or not. This research has also found ways to increase the utilization of pedestrian bridges by letting the pedestrians themselves ranked the main suggestions. It is concluded that the first ranked as main factor and main suggestions are both related to the location of pedestrian bridges. The analysed data are supported by the literature review of this research study. Thus, every objective in this research had successfully achieved through the responses from the pedestrians in Selangor. Further study is to suggest the study on the difference between utilization at specific location of pedestrian bridges with other certain location of pedestrian bridges. The study could be done to focus on a certain chosen pedestrian bridges in order to get precise information and data of the utilization at different area. This would enable respondents from a particular area around the certain pedestrian bridge to express their perception more precisely and could express how location of pedestrian bridges could influence pedestrian's decision in utilizing the pedestrian bridges.

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