

SATISFACTION LEVEL OF TARUMANAGARA UNIVERSITY STUDENTS ON PEDESTRIAN FACILITIES SURROUNDING CAMPUS (ON S. PARMAN ROAD)

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ABSTRACT

Walking is a choice of transportation modes. Usually people walks as last mile transportation to reach the final destination or as a starting movement from departure location. In Jakarta, pedestrian facilities such as side walk, pedestrian crossing or pedestrian bridge, in general were far from satisfactory. For university students who are not using private motorized vehicles to reach or leave campus, walking is almost a must. Tarumanagara University is located at the heart of West Jakarta and accessible with major transportation services such as Transjakarta Line 9 from Pinang Ranti to Pluit vv. There were many other campuses surrounding Tarumanagara University such as Trisakti University and Krida Wacana Christian University. Therefore many student private dormitories were available in this area. Students who choose to stay at this kind of residence also walk to and from campus. As a result walking activities in this area is very important. A hundred and fifty of students were asked to filled the questionnaires. The questionnaire consist of two parts. The first part was about general data of the respondent, i.e. gender, age, frequency of using pedestrian facilities surrounding campus. The second part was the questions regarding satisfaction level of using side walks and pedestrian bridge surrounding campus. Seventy five respondents will be interviewed directly and the rest will be asked to fill online questionnaires. There will be mean difference analysis to observe possible difference between the satisfaction level results between different gender, different frequency of using the facilities and different survey method.

Keywords: satisfaction level, Tarumanagara University Students, pedestrian facilities,

1. INTRODUCTION

Usually people walks as last mile transportation to reach the final destination or as a starting movement from departure location. Provision of pedestrian facilities should follow Minimum Standard of pedestrian facilities stipulated in Minister of Public Work Regulation No. 03/PRT/M/2014 and Decree of Directorate General of Highways, Ministry of Public Work No. 76/KPTS/Db/1999. The objective of this study was to measure the satisfaction level of Tarumaagara University Students on pedestrian facilities surrounding campus.

2. SCOPE

The students were only asked to rate ther satisfaction level on pedestrian facilisitcs surrounding campus includins side walks, zebra cross and pedestrian bridge located between Grogol junction and Grand Tropic Hotel in the West side and from Grogol junction and Kodim (Military District Command Office) 0503 West Jakarta in the East side. Figure 1 shows the scope of the area using red lines.

3. PREVIOUS STUDIES

Rietveld (2001) stated that there are various reasons why walking are chosen for human last mile transportation, e.g. provides door to door transportation, no waiting time as if in public transport services, environmental friendly, cheap, and healthy. On the other hand it has some disadvantages such as low speed, less convinient and physical effort depends on wind, temperature and gradient. Dimitriou and Gakenheimer (2011) stated that walking does not cause polution neither air or noise. Furthermore Yazid et al (2011) stated that walking is an efficient energy consumption activity.

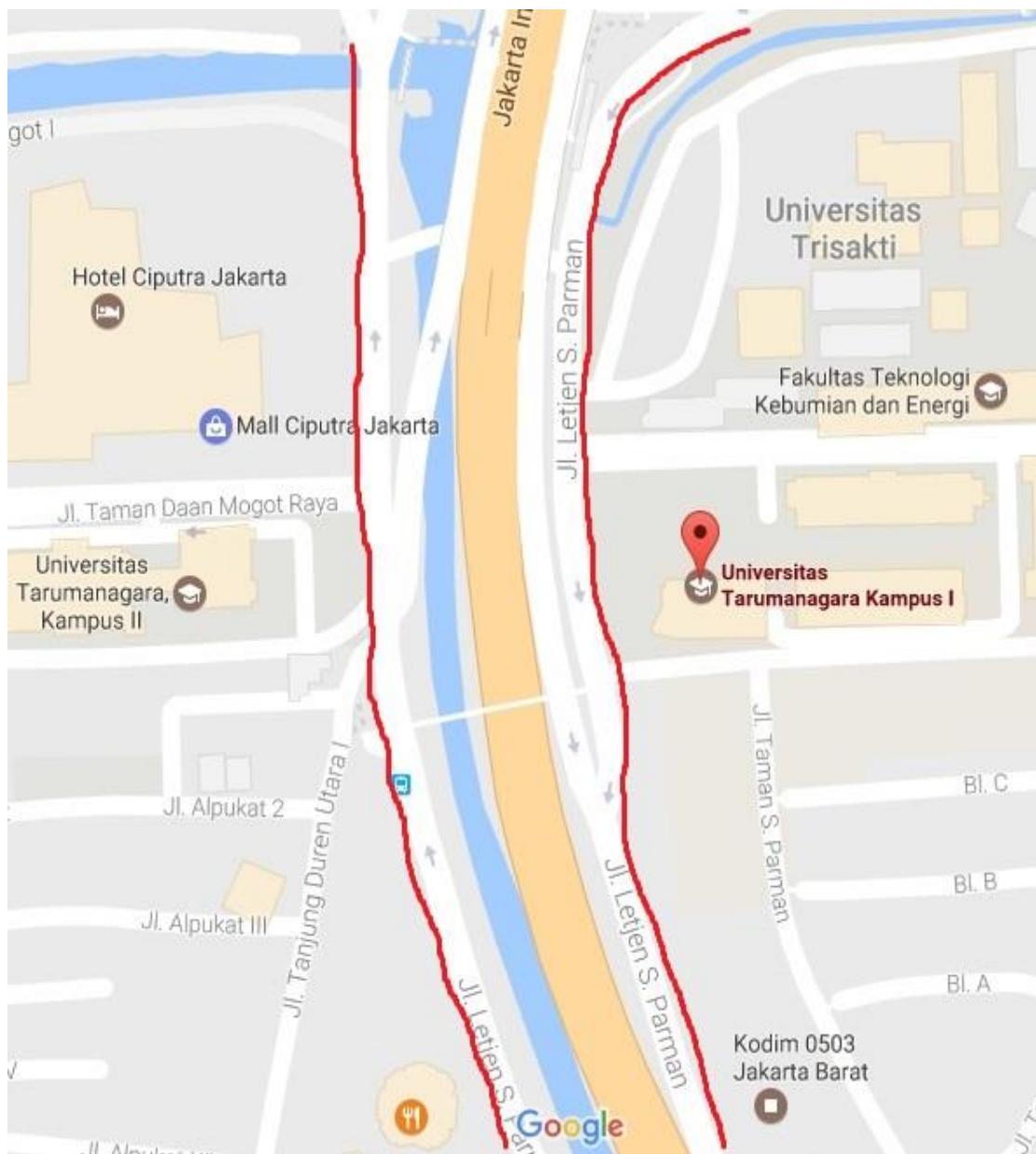


Figure 1. Scope of Study Location Indicated by Red Lines

Based on Law No. 22/2009, Law No. 38/ 2004, and Government Regulation No. 34/ 2006 the government is required to provide pedestrian facilities, i.e. side walks, pedestrian bridge and zebra cross. Based on Ministry of Public Work Regulation No. 03/PRT/M/2014, there are several criterion of ideal pedestrian network, i.e:

- avoid possible physical contact between pedestrians and possible crash with motorized vehicles;
- avoid any hazard such as holes;
- has a direct path with minimum walking distance;
- continuous and without obstacles;
- has supporting facilities such as resting bench and street lighting;
- protect pedestrian from heat, rain, wind and air/ noise pollution;
- minimize possible criminal act; and
- allow access for all users, including pedestrian with physical barrier by using universal planning and design.

Based on Ministry of Public Work Regulation No. 03/PRT/M/2014, there are also:

- space requirement of a pedestrian based on human dimension (stand still/ moving, with/ without belongings, alone/ with group, see Figure 2).

- space for pedestrian with special needs (minimum width, using special material with easily identified texture, avoid potential hazard such as holes, side walk with easy road crossing, equipped with guiding blocks with different textures to guide the movement, unslippery surface, if there is height difference maximum gradient is 8% / side railing provided with certain specification/ street lighting provided).
- pedestrian free space.
- minimum gap between side walk and buildings.

4. METHOD

The data was collected from 168 undergraduate students from Tarumanagara University, Jakarta. This was important, because this study was aimed to understand the satisfaction level of pedestrian facilities surrounding campus. Therefore the respondents should be people who use the facilities daily to be able to rate their perception regarding the pedestrian facilities. In the study area there were two main campuses of Tarumanagara University, i.e. Campus 1 in the East Side of Jalan Jend. S. Parman and Campus 2 in the West Side of Jalan Jend. S. Parman. Campus II hosts the largest faculty, i.e. Faculty of Economics (Department of Management and Department of Accounting all together made up more than one third of 10,455 students of the university). All activities of basic knowledge lectures from all faculties also done here. Therefore the flow of pedestrian of first year students between campuses was heavily use both pedestrian bridge or illegally cross the street. All other faculties (Law, Engineering, Medicine, Psychology, Art, Communication Science and Post Graduate Studies) were located in Campus I. Student gender proportion was almost equal, i.e. 5273 males and 5182 females based on a database dated 3 April 2017.

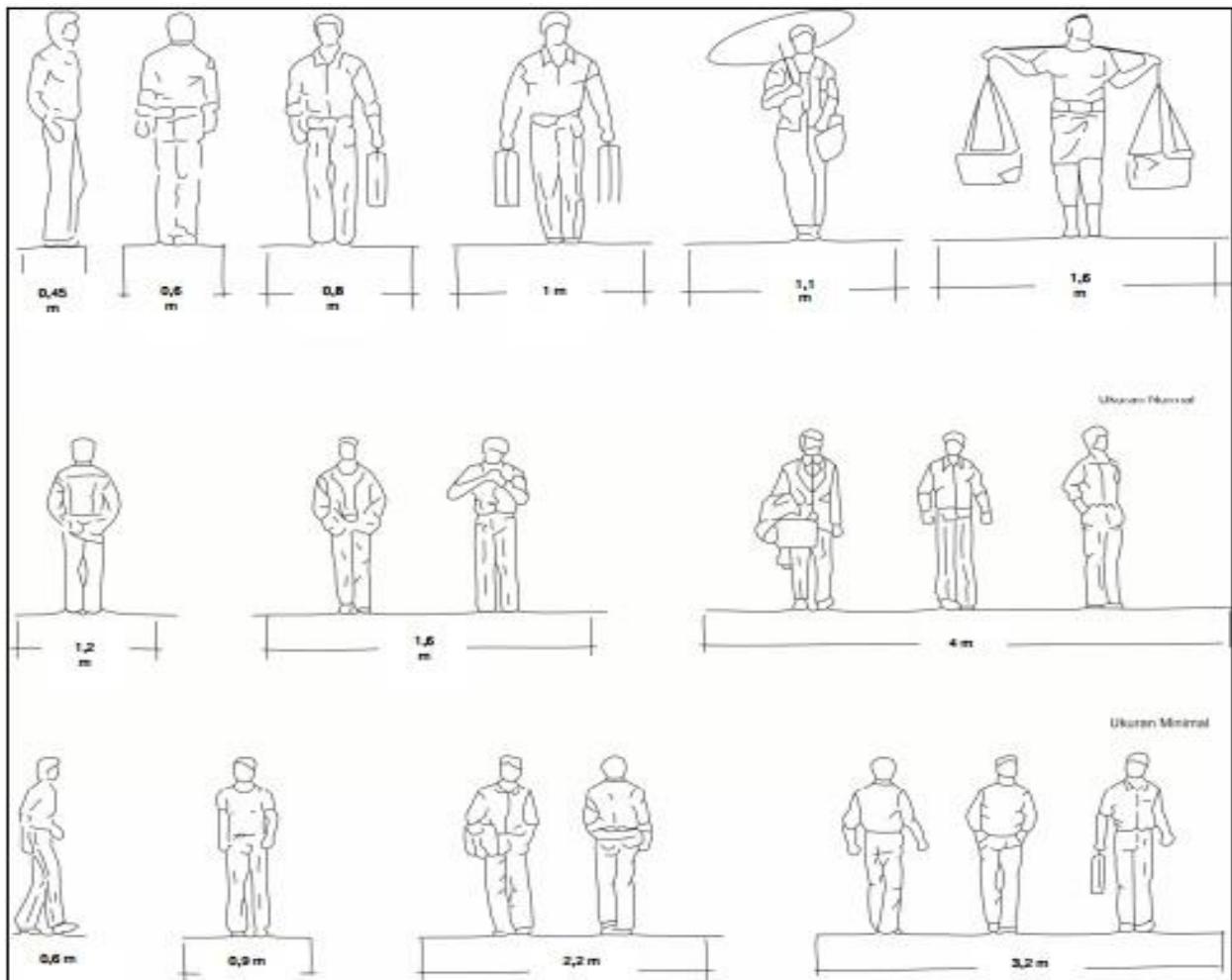


Figure 2. Space Requirement of a Pedestrian Based on Human Dimension

The data collection was conducted in two different approach. First, printed questionnaires were distributed to 75 respondents. As the surveyor hand over the questionnaires directly to the respondents, there were opportunities for the respondents to ask for further explanation regarding the questions. Second questionnaires were distributed online through emails and mobile online chats such as whatsapp, line, we chat etc. High participation rate of 93 respondents were obtained. But the responses were one way.

The questionnaire was consisted of two main parts, i.e. general data and perceptual data. In the first part respondents were asked to inform their name, gender, age, region of origin, current address, faculty, transport mode to campus, the frequency of using the pedestrian facilities per week and lastly the parts of pedestrian facilities frequently used. In the second part, the respondents were asked to rate their satisfaction level regarding pedestrian facilities using Likert Scale from 1 (strongly disagree) to 6 (strongly agree). The questions can be listed as follows:

1. Safety when crossing road access to the properties.
2. Safety of pedestrian bridge use.
3. Safety of side walk use.
4. (No) disturbance of street/ sidewalk vendors.
5. (No) disturbance of illegal parking on sidewalks.
6. (No) disturbance of light or electricity poles layouts.
7. Sufficient width of pedestrian bridge for two persons passing in the opposite directions.
8. Satisfaction of pedestrian bridge stairs were convenience.
9. Sufficiency pedestrian bridge lightings during the night.
10. Satisfaction of pedestrian bridge roof and handrail .
11. Sufficiency of width of sidewalks for two persons passing in the opposite directions.
12. Sufficiency of height of sidewalks from road surface.
13. Sufficiency of sidewalks lightings during the night.
14. Sufficiency of sidewalks longitudinal gradients.
15. Satisfaction of facilities for regular buses boarding/ alighting.
16. (No) disturbance of street furnitures (water hydrants, benches, public phone, etc) layouts.
17. (No) disturbance of bollard (installed to avoid sidewalks use by motorcycle) installations.
18. (No) disturbance of guiding blocks (for the blind) installations.
19. (No) disturbance of manhole (for sewer inspection, etc) installations.
20. Satisfaction of shade provided by plantations.

Mean of responses of questions number 1 to 3 were calculated to represent Safety. Mean of responses of questions number 4 to 6 were calculated to represent Freedom. Mean of responses of questions number 7 to 15 were calculated to represent Standard. Mean of responses of questions number 16 to 20 were calculated to represent Convenience. A series of mean difference statistical analyses were then conducted using 0.05 significant levels. The mean difference analyses were based on grouping of method of data collection, gender, age, region of origin, current address, daily mode of travel to campus, frequency of pedestrian facilities use.

5. THE DATA

As indicated in the previous chapter, there were 168 respondents participated in this study. Table 1 shows respondents distribution by gender and by type of questionnaire. This was not representing gender proportion of Tarumanagara University student population which was almost equal.

Table 1. Distribution of Respondents by Gender and Type of Questionnaire

| | | Female | Male | Total |
|-----------------------|--------|--------|------|-------|
| Type of Questionnaire | Direct | 32 | 43 | 75 |
| | Online | 39 | 54 | 93 |
| Total | | 71 | 97 | 168 |

Most of the respondents (97%) were between and included 18-22 years old, only very few were less than or more than that range of age. This was because the respondents were undergraduate students. About 54% of the respondents were originated from Jakarta and about 77% of the respondents lived in Jakarta. About 67% of the respondents were from physical science departments. Again this was not representing proportion of Tarumanagara University student population between physical and social sciences departments which was almost equal. About

54% of the respondents used public transport or walked to campus. The rest used private vehicles. Interestingly only about 39% of the respondents used pedestrian facilities every day.

As the Likert Scale used for the responses varied between 1 and 6, the 3.5 was the departure from dissatisfaction to satisfaction of pedestrian facilities surrounding Tarumanagara University. The mean value of the responses from 168 respondents of each question was as follow:

1. 3.75: Safety when crossing road access to the properties.
2. 3.57: Safety of pedestrian bridge use.
3. 3.77: Safety of side walk use.
4. 2.78: (No) disturbance of street/ sidewalk vendors.
5. 2.07: (No) disturbance of illegal parking on sidewalks.
6. 3.02: (No) disturbance of light or electricity poles layouts.
7. 4.39: Sufficient width of pedestrian bridge for two persons passing in the opposite directions.
8. 3.04: Satisfaction of pedestrian bridge stairs were convenience.
9. 3.70: Sufficiency pedestrian bridge lightings during the night.
10. 3.62: Satisfaction of pedestrian bridge roof and handrail .
11. 3.79: Sufficiency of width of sidewalks for two persons passing in the opposite directions.
12. 4.38: Sufficiency of height of sidewalks from road surface.
13. 3.64: Sufficiency of sidewalks lightings during the night.
14. 4.15: Sufficiency of sidewalks longitudinal gradients.
15. 3.29: Satisfaction of facilities for regular buses boarding/ alighting.
16. 3.64: (No) disturbance of street furnitures (water hydrants, benches, public phone, etc) layouts.
17. 4.18: (No) disturbance of bollard (installed to avoid sidewalks use by motorcycle) installations.
18. 4.80: (No) disturbance of guiding blocks (for the blind) installations.
19. 3.74: (No) disturbance of manhole (for sewer inspection, etc) installations.
20. 3.59: Satisfaction of shade provided by plantations.

In general the respondents were satisfied with the pedestrian facilities in almost all aspects. There were few exceptions. All mean scores regarding freedoms was below 3.5. In all questions the minimum response was 1 and the maximum response was 6. The worst was regarding the mean score of disturbance of illegal parking in the side walks (2.07). Regarding standards there were two mean scores representing dissatisfaction, i.e. convenience of pedestrian bridge (3.04) and boarding and alighting facilities for regular buses (3.29). The respondents responded very sympathetically to the blind by mean score of 4.80 regarding installation of guiding block. Other high mean scores beyond 4.00 were sufficiency of width of pedestrian bridge (4.39), height of sidewalks from road surfaces (4.38), support to bollard installation (4.18) and sufficiency of side walks longitudinal gradients (4.15).

6. ANALYSIS

As stated earliner mean of responses of questions number 1 to 3 were calculated to represent Safety (3.70). Mean of responses of questions number 4 to 6 were calculated to represent Freedom (2.62). Mean of responses of questions number 7 to 15 were calculated to represent Standard (3.78). Mean of responses of questions number 16 to 20 were calculated to represent Convenience (3.99). Except for Convenience mean responses which varied from 2 to 6, the mean responses of other factors were varied between 1 to 6. In general, one can conclude that respondents were mostly satisfied in the convenience factor and mostly dissatisfied in freedom factor.

We analyse mean difference of each factors (safety, freedom, standard and convenience) using 0.05 significant levels. The mean difference analyses were based on grouping of method of data collection, gender, age, region of origin, current address, daily mode of travel to campus, frequency of pedestrian facilities use. First overall samples were used of 168 respondents were used. In general the groupings were not causing statistically significant differences except for freedom. Mean scores of freedom of respondents lived in Jakarta (2.70) was statistically ($\alpha=0.019$) higher than respondents who did not live in Jakarta (2.35). This implies that residences of Jakarta were able to tolerate sidewalks disturbances compare to non-Jakarta residences. Mean scores of freedom of respondents studied physical science (2.82) was statistically ($\alpha=0.008$) higher than respondents who studied social science (2.53). This implies that physical science students were able to tolerate sidewalks disturbance compare to social sciences students. Mean scores of freedom of respondents who used public transport daily (2.79) was statistically ($\alpha=0.003$) higher than respondents who daily used private transport (2.42). This implies that public transport users were able to tolerate sidewalks disturbance compare to private transport users.

There was interesting analysis result regarding mean scores of convenience factor if compared between direct survey and online survey results. Mean scores of convenience of respondents who filled printed questionnaires

(3.74) was statistically ($\alpha=0.000074$) lower than respondents who filled online questionnaires (4.19). This implies that respondents who filled printed questionnaires tend to be more knowledgeable regarding the nature of the questions (if not clear can be directly verified) compare to online respondents

7. CONCLUSIONS AND RECOMMENDATIONS

Based on the results, it can be concluded the followings:

1. In general the respondents were satisfied with the pedestrian facilities in almost all aspects.
2. In general the respondents were satisfied with convenience factor.
3. In general the respondents were dissatisfied with freedom factor.
4. In general the groupings were not causing statistically significant differences except for freedom.
5. Respondents who filled printed questionnaires tend to be more knowledgeable regarding the nature of the questions (if not clear can be directly verified) compare to online respondents.
6. Tarumanagara University students respect the effort to facilitate people with disabilities such as the blind by expressing their tolerance to guiding block installation.
7. Tarumanagara University students respect the effort to avoid illegal use of sidewalks by expressing support to the installation of bollards and expressing disagreement with illegal vendors/ parkings.

Based on the results, it can be recommended the followings:

1. As the respondents in general dissatisfied with freedom factor, the Government of Jakarta should enforce the law regarding sidewalk vendors, illegal parking in the sidewalks and evaluate electricity and light poles layout.
2. The use of online questionnaires is recommended if gathering quick responses from large number of respondents is required. However the online questionnaires should be equipped with readily developed frequently asked questions sections.

REFERENCES

- ____ Government Regulation No. 34/ 2006 on Road
- ____ Law No. 22/2009 on Traffic and Road Transportation.
- ____ Law No. 38/ 2004 on Highway.
- ____ Ministry of Public Work Regulation No. 03/PRT/M/2014 on Guidance on the Planning, Provision, and Utilization of Pedestrian Infrastructure and Facilities in Urban Area.
- Dimitriou, H.T., and Gakenheimer, R. (2011) *Urban Transport in the Developing World*. Edward Elgar Publishing. Cheltenham.
- Rietveld, P. (2001) *Biking and Walking: The Position of Non-Motorised Transport Modes in Transport System*. Tinbergen Institute Discussion Paper. Tinbergen Institute. Rotterdam.
- Yazid, M.R.M., Ismail, R., and Atiq, R. (2011) *The Use of Non-Motorized Transport in Sustainable Transport in Malaysia*. Proceedings of 2nd International Building Control Conference 2011. 11-12 July 2011. Penang.