Impact of Temporary Activity in Pedestrian Circulation Patterns

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Abstract. Pedestrian indirectly has an important role in daily activity and urban design. A pedestrian should fulfill its primary function, and benefit for the user in terms of safety, ease, and comfort circulation. One of the pedestrian characters in Jakarta is commercial pedestrian, which surrounded by store and the entrance facing the pedestrian, so the lane has a high volume of pedestrian user. However, this situation pushes another comer to use pedestrian for selling foods (temporary activity), which can lead more people to visit pedestrian to eat and socialize, however pedestrian sidewalk will be narrow at some points and can cause the circulation flow of pedestrian users would have several variations between activities at different times and places.

The method used in this study is through architectural observe, interview the pedestrian user, and literature study. This study will find out the impact of the role of temporary activity in pedestrian circulation patterns and levels of comfort for a pedestrian user at Jalan Sabang and Jalan Jaksa, Jakarta.

1. Introduction

The rise in pedestrian volume at several pedestrian points in Jakarta makes public crowded spaces more active by other pedestrian user. Until new users appear, one of them is sellers who take advantage of crowded pedestrian conditions to sell on small to large scale stands (street hawkers). Gehl [1] said if a space can make basic activities interesting, this space is an important space to be able to bring the development of other activities in the pedestrian.

This causes new pedestrian roles to emerge not only as pedestrian paths but also to create new activities on the pedestrian, which called temporary activity that are opened at certain times and have different types of trade. Hanan [2] said through the ways it is occupied and used, temporal uses of space play an important role in framing and expressing the identity and uniqueness of the place.

Interventions that occur in pedestrian from the beginning are perceived as a disturbance for pedestrians, to become one of the activities carried out by pedestrians to fulfill the activities of eating, drinking, and socializing.

The presence of pedestrian habits, it can be shown that the choice of walkers to be traversed is pedestrians who are active and have unique characteristics. Jacobs[3] stated that great characteristic of the streets is to have a unique sense of place, a balance between various types of transportation modes and safe, attractive and economically vibrant streets and public places. Pedestrian paths that are not following the rules and have two roles at different times become one of the culinary tourism destinations (street food) that must be visited by foreign and local visitors to be able to experience a unique place in the city of Jakarta. Based on Pynkyawati [4] circulation patterns are divided into 5
types of circulation patterns: linear, radial, spiral, network, mixed. It can be influenced by someone's speed while moving, by their visual observations on an object. Rapoport [5] said Walkers need a transition when walking, which is more in terms of experience, lighting levels, sound, environment, and other sensory need.

Temporary use activities can be transient, i.e. activities only occur once for a limited and repetitive time, otherwise they can be migrants, and activities can change from one location to another following developments. Lehtovouri [6] said temporary Activity can eventually also become permanent, if the activity becomes very popular and is considered an important element of the new character of the place.

2. Method
Using descriptive methods, the authors get theoretical references from books, journals, and electronic media sources (e-books). The source of the development data comes from the literature study, observations, and the personal documentation of the author during field survey. Observations have been made from March to April 2019, on different times and day, morning (07.00-09.00), daytime (11.00-13.00), afternoon (15.00-17.00) and night (18.00-20.00). The result of physical observation is recorded diagrammatically and in photographs. The chosen pedestrian location is in the Central Jakarta area, Jalan Sabang and Jalan Jaksa, because it is considered to have unique pedestrian characteristics that affect pedestrian users and the environment.

3. Results and Discussions
Jalan Sabang and Jalan Jaksa have two access roads that connect. It can be via primary access Jl. Kebon Sirih with a road length of 550 m and Jl.K.H. Wahid Hasyim with a length of road length 380m. Jalan Jaksa has a length of the road of around 478m, on the side, there are motels and hotels, while the length of Jalan Sabang is 415m and is filled by shops, a place to sell food, and a bank.

3.1. Jalan H.Agus Salim (Jalan Sabang) Pedestrian Physical Analysis

3.1.1. Pedestrian Physical Analysis
Pedestrian in Jalan Sabang has a width 180 cm and has a height difference with a 10cm high parking area. On the line, there are some obstacle found which was used for the trading area with size 50-70cm. Pedestrians are also used as parallel-motorized parking and street vendors, so two pedestrians cannot pass the pedestrian without touching, and the pedestrian becomes narrower so that it can become a barrier to circulation and slow the speed of pedestrians.

| No | Distance of Pedestrian | Photos |
|----|------------------------|--------|
| 1  | A-A’                   | ![Image](image1.jpg) |
| 2  | B-B’                   | ![Image](image2.jpg) |
The narrowing on the A-A is due to the absence of restrictions or differences in the height between the pedestrian and the car park lane, so that the parked car is more advanced. In the B-B, the narrowing on the left and right side is caused by the same factor, specifically the presence of street vendors with different types and sizes of trading places. On C-C’, a pedestrian can only be passed by one person because the absence of a building beside it is only a zinc fence as a limit, so pedestrian is used as a place to sell clothes during the day and evening as a place to eat. So, the pedestrian user must change direction and walk to the primary roadside by side with cars.

Table 2. Narrowing on the pedestrian in Jalan Sabang

| No | Distance of Pedestrian | Photos |
|----|------------------------|--------|
| 1  | D-D’                   | ![Photo1](image1) |
| 2  | E-E’                   | ![Photo2](image2) |

D-D section is very different from the others, due to dealing with two hotels, the Max One Hotel and Ashley Hotel, where the pedestrian is used as car parking until the lane closed and making pedestrian users turn to use the main road to continue their walk journey. E-E’ section on the east side is narrow because there are rows of motorized parking and there are no inter-lane limits so that the motorbike takes the pedestrian route, while the west side has a 10 cm level and there is no selling activity, so there are no obstacles when walking and lanes still comfortable to use.

3.1.2. Pedestrian User

Pedestrian users are divided into two categories, that is a temporary resident from outside the area and who live and stays in the area. One category of residence in the area is the native and temporary residents. Temporary residents are non-permanent visitors and live more than 24 hours in temporary places, so tourists and construction workers who come and live in temporary dwellings are considered temporary residents.

In addition, there were sellers coming from outside and inside the Jalan Sabang area during the day, apart from selling on the edge of the pedestrian, they were selling in the alleys around Jalan Sabang and at night they moved to the parking area on Jalan Sabang. The presence of these sellers attracts visitors outside the area; the visitor’s presence is not always there. These visitors mostly come at night, so the pedestrian lane becomes denser than before. Most of the pedestrians are also usually used by office workers to cross with the aim of foraging during the day, so that at that time it was filled with many office workers from men to women.

Temporary selling activities during the day are not too many because the majority of parking lots are still used for cars, which are monitored by the Transportation Agency, which runs until two o’clock in the afternoon. So that in the afternoon the transition time in some seller points starts to appear and starts building temporary tents.
The crowd point, which is dominated by office workers during the day on weekdays and Friday because of the rest time, they choose to eat on Jalan Sabang. Access through workers through the alley near Robinson came from Jl. Kebon Sirih, but at night they preferred to go straight home so that at night office workers were walking in fewer pedestrians. With the presence of this temporary activity, it can be seen that at night, the volume of travel density on pedestrian Jalan Sabang is increasing by temporary visitors (blackest dot) from the outer area of Jalan Sabang. Street vendors who sell tents and providing places to eat at night on average already have their respective areas so that the location of the seller does not change.

From these comparisons, it is known that the highest obstacle in the presence of temporary trading activities and the volume of vehicles passing Jalan Sabang for pedestrians is at night, due to varied pedestrian users and the volume of pedestrians coming in congested.

3.1.3. Changes in Circulation Patterns in Pedestrian

In the diagram (Figure 5) the area given in (black square mark), is the area with the most visible changes. It is passing through this area. We want to describe the changes in circulation flow and
density and the variety of users who are present while temporary activities, namely sellers who provide seats in the place of sale. Speed, flow, and density have a relationship that can lead to interaction, as to increase the social interaction that occurs, and the visual quality is increasingly varied.

![Figure 3. Changes and densities that occur in pedestrian Jalan Sabang at different times.](image)

### 3.2. Jalan Jaksa

#### 3.2.1. Pedestrian Physical Analysis

On the Pedestrian walkers are faced with various types of inns and restaurants, so they have a variety of visual displays for pedestrians. Pedestrians have a level between the main road and pedestrian road 15cm (curb) high and no vehicle tracks. The width of the pedestrian without obstacles is 173cm, and the main road for car is 330cm but because the area is known as a place for tourists so many rows of eating-places extend the area to the pedestrians. The sellers with temporary stands in pedestrians caused the narrowing of the lane by 40-60cm.

The narrowing that happened at the A-A’, because there was a factor of the placement of trees that were too backward and the decoration of the substations using iron poles, which were attached to the pedestrian until the walking room could be used by two people but touched.

| No | Distance of Pedestrian | Photos |
|----|------------------------|--------|
| 1  | A-A’                   | ![Photo](image) |
| 2  | B-B’                   | ![Photo](image) |

On B-B’ section, the western side of the pedestrian is used as a parking lot by the owner of the house beside him because on Jalan Jaksa there are smaller roads than Jalan Sabang, so public parking is not provided for existing facilities users. It makes the walking space of pedestrian users narrower and forces them to go down to the main road.
Table 4. Narrowing on the pedestrian in Jalan Jaksa.

| No | Distance of Pedestrian | Photos |
|----|------------------------|--------|
| 1  | C-C'                   | ![Image](image1.png) |
| 2  | D-D'                   | ![Image](image2.png) |

Trees reduce the C-C' section in the east side, the width of the track and drink stalls so that the pedestrian lane can only be used by one pedestrian. The last section, D-D' is the closest route to the main road of Jalan Kebon Sirih so that it is often the entry channel for sellers, one of which is on the east side of the road reduced by temporary fruit sellers so that one pedestrian can only be passed by. In contrast to the west side, the absence of disturbance makes this route a good walking space category that can be used by two pedestrians freely and comfortably.

3.2.2. Pedestrian User

On Jalan Jaksa, there are many accesses to the alleys leading to people's homes so that the most visible pedestrian lane on the pedestrian lane is the locals. Sometimes residents use this route as a place for their trade and then in the afternoon or evening they go home.

Figure 4. Crowd Changes in The Morning and Noon.

There are two types of sellers in Jalan Jaksa, sellers who have permanent shops and temporary sellers who use small kiosks placed on pedestrian lines. The sellers the lane usually sell snacks,
snacks, and gasoline from the wheelhouse selling places until there are small stalls on the edge of the pedestrians that reduce the lane for pedestrians. In addition to sellers and residents, there are temporary population categories, residents who have activities on Jalan Jaksa but do not reside in the area of the road. These temporary residents are foreign and local tourists and construction workers who live around Jalan Jaksa. These temporary residents use pedestrian lines as access to recreational and functional trips.

3.2.3. Changes in Circulation Patterns in Pedestrian

The type of circulation patterns in the morning is linear circulation, in which residents dominate pedestrian users because the Jalan Jaksa area is surrounded by alleys leading to residents’ houses and hostels. Whereas during the day, the circulation pattern turns into a radial circulation, which is the movement start from the central point (office point) then spread towards the restaurants nearby and the center of temporary residents (construction workers) in the alley near Kebon Sirih Mosque as the point of stating point pedestrian users to explore this pedestrian area.

From the accumulation of various times and days it was found that the circulation pattern found in the pedestrian was dominated by a type of linear circulation pattern in which many users walked past this pedestrian already had a destination regardless of what's around. For example, office workers during breaks generally go straight to Sate Senayan restaurant near the main road or Padang restaurant around the road.

Figure 5. Pedestrian User Circulation Pattern on Pedestrian Jalan Jaksa.

Figure 6. Changes and densities that occur in pedestrian Jalan Sabang with different times.
The effect of temporary activities such as economic activities on the track does not have much impact on the user’s walks journey because the economic activities that occur in pedestrians do not have visual qualities that can change the flow of visitors to observe and enjoy. Therefore, it can be explained that users in various types of pedestrian will follow, according to the existing setting conditions, they adjust and use it.

4. Conclusions

The active pedestrian triggered the arrival of sellers who took advantage of the crowded pedestrian conditions to sell small to a large scale of stands and finally open temporary tents around the road as a place for sellers from the existing area. The higher the volume of pedestrians passing through the pedestrian in Jakarta, the higher and more crowded the volume of sellers who are actively trading.

Based on the results of observations carried out in the Jalan Sabang and Jalan Jaksa areas, it was found that the temporary activity that occurred in both would affect the upcoming variations in pedestrian users, their room quality, visual and circulation patterns, where there were significant differences in both even though it has the same type of pedestrian path that is the commercial type.

Visual influence when they walk will be more varied and trigger them to change direction and walk more in groups so that they can experience the temporary activities, and the social interaction in the pedestrian will be higher and denser so that their circulation patterns will change.

Changes in circulation patterns with overlapping activities as findings in this research can be considered in the planning and design of the area, especially pedestrians of Jalan Sabang and Jalan Jaksa. The design can be the most influential public activities (street furniture, parks, sculptures and signage, cafes) in the parking lot so that pedestrian lanes have no interference. In addition to these considerations, the rules for temporary activity land in the form of large-area distribution also need to be given.

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