Sitting Behavior in Pontianak Waterfront

A Case Study in Pontianak

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ABSTRACT: *Opportunities for sitting is an appropriate idea to improve the quality of outdoor public space environment. Their existence paves the way for several activities which considered to be the prime attractions of public spaces. The objective of this paper is to understand how Pontianak Waterfront sitting area design and layout affects the user's behavior and to formulate several issues of the sitting area design quality of Pontianak Waterfront. The method used for the data gathering is through direct observation translated into behavioral mapping and video-based tracking on the location. Furthermore, this research paper verified that Pontianak Waterfront sitting area design does affects the behavior of the people who uses the space. Followed by these factors, vendors who used the public space as a working space are considering to place their stall in the most crowded area, even some are sitting on the floor with public sitting area is used as a backrest.*

Keywords*: Public space, waterfront, sitting area, behavior, activity.*

INTRODUCTION

Waterfront has always been an identical segment of a city. According to Echols (2003) the definition of a city waterfront is a concept of development of a riverside area. Not only in big cities such as Dubai and Europe Cities that have a city waterfront, most cities in Indonesia also possess the existence of a developed riverside area. Recently, especially three years ago, the city government of the city of Pontianak has finished developing a waterfront area in Pontianak. The place is named Waterfront City Pontianak, or so familiarly called Pontianak Waterfront by the locals. The waterfront itself is located on the riverside of Landak and Kapuas River. Mainly act as an attraction for anyone who visits Pontianak or even the locals who lives nearby. Interestingly, the place is more crowded during the night due to the beautiful view, according to the visitors including myself. The visitors can enjoy night boat trip around the river while having an illuminated view of Sultan Syarif Abdurrahman mosque on the other side.

It is of particular importance to emphasize what good sitting arrangements mean in all type of public spaces in cities (Gehl, 1971). In order for people to sit on public spaces, they need to have a considerable reason behind it. The existence of worthwhile activities and opportunities is what is meant. These activities do not have to be serious and exceptional; it can be simple ones such as: sleeping, having conversation, eating, reading, watching people, etc. Evaluation on what a good sitting place is determined by these activities. According to Gehl (1971) a good sitting place is where the user can also stand up. The corner or the edge of a public space is the sitting places with the highest demand; where the user feels safe, having a decent view, and to shelter from unwanted weather. When people are in a public space, in this case specifically while sitting, they need to, or at least have the urge to, take advantage of what the designer is providing

and the available contents on the area. For example, how did the sunlight penetrate through the space in a specific part of the public space, how did the air circulation flow, how did the design affect the surroundings, etc. Sitting places that provides clear safety and good view will always be popular than those that did not have any advantages. Sitting area is divided into two types: primary and secondary. Primary sitting area is when the design criteria is fulfilling demands of the user; for examples are chair and bench. Furthermore, primary sitting places are placed in a strategic location in order to maximalise potentials. Next one is secondary sitting; is where considered as "alternative" when primary sitting is already full. For example, are staircase, low walls, catwalk, floor, etc. On the other hand, when primary sitting or even secondary sitting is visible to be deserted, then it gives the impression of a dead and abandoned place.

Following the user types, sitting area design can be chosen through observation on types of activity that are going to be engaged by the user. For example, perhaps a group discussion need a round grouping bench design or just simply sit on the floor and have a face-to-face talk. Analysis on space and quality of function towards public spaces can be guidance in providing sitting area layouts and observe the human behaviour around it. The objective of this paper is to identify Pontianak Waterfront sitting area design and how the users adapt to it. Furthermore, the contribution of this paper is to formulate the issues at hand occurring in Pontianak Waterfront regarding the behavioral activities towards the sitting area design.
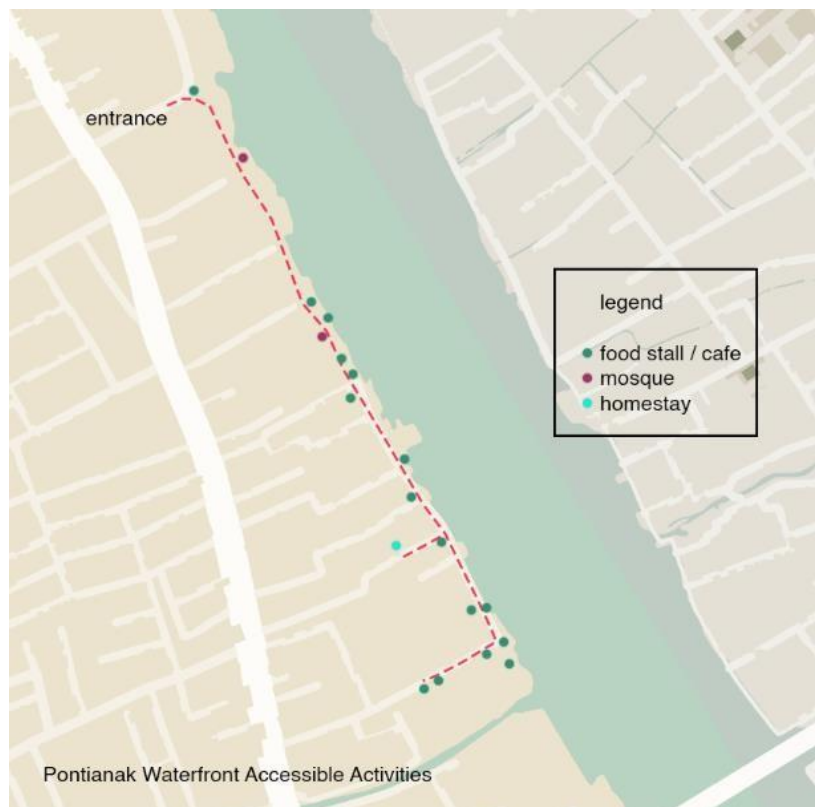

Figure 1. Pontianak Waterfront accessible activities route.
Source: Author, 2020

Questions
1. How is the sitting behavior of the user in Pontianak Waterfront?
2. How does Pontianak Waterfront sitting area design and layout affects the user's sitting behavior?

Research Objectives
1. To understand how Pontianak Waterfront sitting area design and layout affects the user's behavior.
2. To formulate several issues of the sitting area design quality of Pontianak Waterfront.

LITERATURE REVIEW
Walking Strategy for Better Cities and Lifestyle
  Many large cities nowadays are encountering conflicts on transportation and accessibility. Increasing levels of traffic congestion is a problem that is progressing throughout the year, following urban sprawl due to the infrastructure maintaining cost. On the other hand, global warming is getting much more of a problem from the poor air quality produced by large amounts of motor transportations, influencing poor health quality with the over-reliance on vehicles to local journeys. With the developing use of transportations, public spaces or open green spaces are getting decreased since its low of demand making them appears dead or abandoned.

  Walkable open spaces have many benefits including local inhabitant income. An increase number of pedestrians may prove to be a significant float to the local economy of an area. Walking strategy can be seen as successful implementation includes: reduction in personal vehicle use to short destinations, safety for vulnerable users, increased use of public transport meaning decreasing congestion and potential for conflicts, urban sprawl reduction, population health improvements, and aesthetically better urban environment. The conclusion is, the liveability and viability of our cities in the future will depend critically on how successful these policies are defined and translated into practice (ITF, 2012, p. 18).

Floor Sitting Behavior
  Floor sitting in public spaces like Pontianak Waterfront is divided into two. The first one is committing place making by using certain large space of the walkway; sitting and gathering face-to-face on the floor. The second one is near a public bench. According to Putro (2017) the reasoning behind this is usually done for when people having dinner or doing work with their laptop; the bench is acting as a table. This gives a poor image to Pontianak Waterfront, since there are no proper table visual representations provided in the area. Looking on the other way, it is the user's consciousness to use benches as their table in response of their behaviour.

Places to Sit and Pause
  According to Gehl (2004, p. 32) the number of public benches is an integral part of pedestrian activity patterns, especially in a waterfront. The presence of these benches gives opportunity to enjoy the main attraction of the place and simply to rest and enjoy surrounding scenery. Placement is important. The other aspect that affects public benches qualities to look aside from the number is the view, shade, and comfort. People wanted to

feel safe while sitting, not the other way around. Connection to important pedestrian links and orientation to street activities are also important in order for people to circulate around easily. People's choice of sitting places is able to be related to population or the community structures that occur at the boundary of various domain. Physical environment structures and details are preferred at times to sitting areas in the middle of a space alongside spatial boundaries. Sitting places such as benches are more demanded where the user's back is protected rather than less precisely defined places. Several studies found that restaurant seating with the backs or sides adjacent to the wall and with a good view of the general situation were preferred to other seating, as studied in sociologist Derk de Jonge's "Seating Preferences in Restaurants and Café".
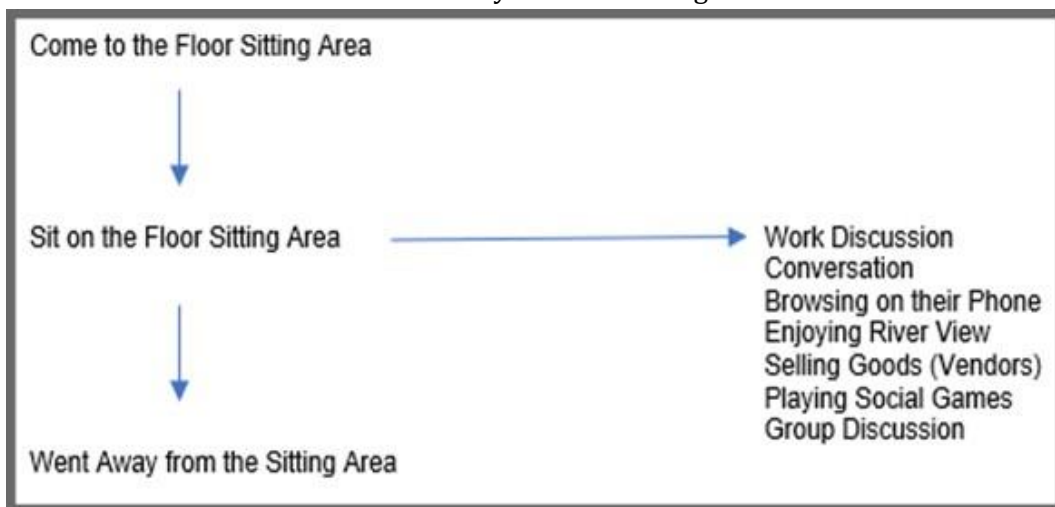
Activity on Sitting Area

Table 1. Activity on Siting Area
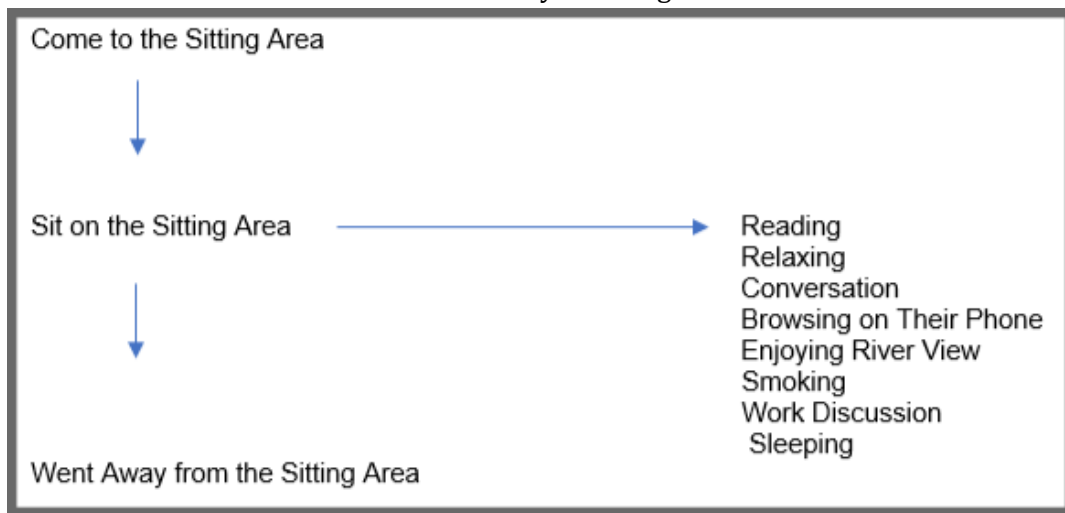
Source: Author's Visualization Based on Putro, T.P.P

Activity on Floor Sitting Area

Table 2. Activity on Floor Sitting Area

Source: Author's Visualization Based on Putro, T.P.P.

RESEARCH METHOD
Research Object and Location
        The observed object is public benches available throughout Pontianak Waterfront, Pontianak, West Borneo. With the gathered information, human behavior and how users adapt to it can be observed.

Data Gathering Method
        Data gathering method in this observation is through direct measuring and calculating in Pontianak Waterfront, activity observation, and author's personal experience. The measured and calculated objects mainly are public bench with chair as an alternative and floor sitting area. Measuring and calculating tools including a ruler and a tape measure. In responding limitations due to Covid-19, the author came to a decision to observe the objects during busy hour where many individuals are absent from the place. Another method is by comparing previous research paper on street furniture and public space design. The selected paper is titled Desain Street Furniture Taman Kota Ponorogo Dengan Mengangkat Identitas Serta Perilaku Khas Warga Kota Ponorogo by Tiko Prabhata Perbawanto Putro (2017). The compared aspect for each article is the sitting area design and human activity on site.

Behavioral Mapping
        Behavioral mapping is visualized through sketches or diagram of what is occurring in the observed places and spaces where activities take place (Sommer, 1986). The visualization has several objectives which are: user behavior, identifying user types and frequencies, and emphasizing between the behavior towards a specific design approach. Observable behaviors including: trip pattern, migration, consumptive behavior, household activities, neighboring, and public facility users. Two methods of behavioral mapping are: place- centered mapping and person-centered mapping, as included below:

A. **Place-Centered Mapping**
    This approach is to possess data on how human (group or individual) interacts with a situation where it accommodates them in certain places. The main focus is the space layout following on how the user used it. Observation is done by making diagram and sketch of a base map.
B. **Person-Centered Mapping**
    This approach emphasizes on human movement in certain periods of time. Focusing on a smaller scale of human such as one individual or a certain group, also their activities as time goes by. Including movement and circulation. Observation is done by making diagram and sketch of a base map.
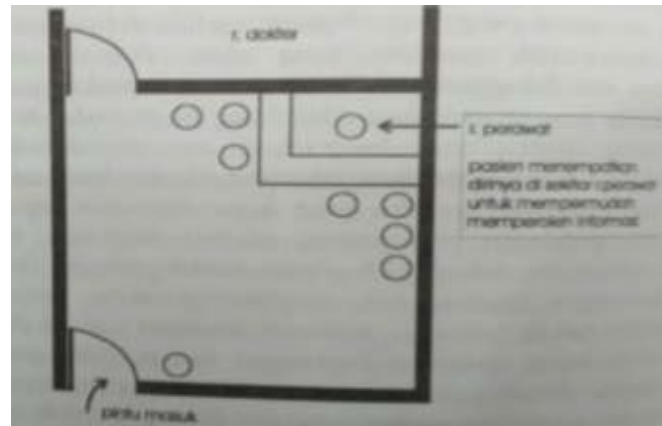
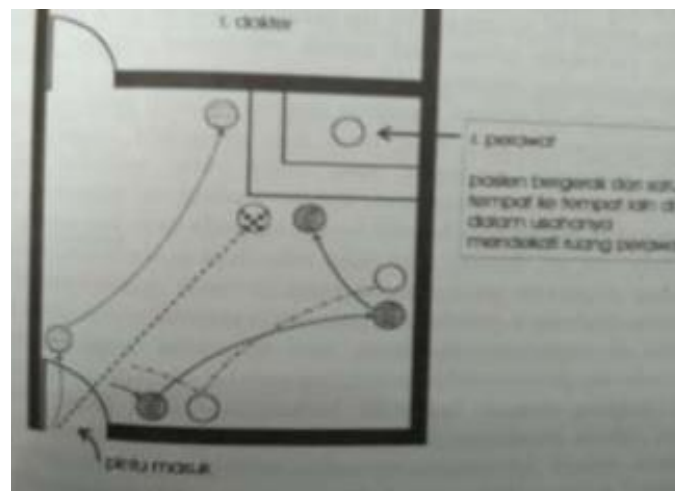**Figure 2.** Place-Centered Behavioral Mapping Illustration
Source: Setiawan, 2014

Figure 3. Person-Centered Behavioral Mapping Illustration
Source: Setiawan, 2014

Video-Based Tracking

Video tracking contains frames for adjusted measure of a certain time, composed of chronological sequences of two-dimensional pixel arrays having a fixed number of rows and columns. The first step in a video-based tracking survey is generally to detect or tracking people in individual frames, focusing and setting the pixel to the pedestrian class (see Munder & Gavrila, 2006 for an overview). The next step is to relate and identify noticeable entity in the middle of the video frames and in between multiple video cameras, if using multiple video camera, in order to acquire the paths (see Yilmaz, Javed, & Shah, 2006 for a survey).

Contemporary academic and commercial automatic video surveillance techniques are able at most utilize vigorously and dependably in limited framework with limited camera networks, limited video footage, limited fault tolerance, and limited flexibility of scenes, thus discoursing to declares of marketing departments (Remagnino, Velastin, Foresti, & Trivedi, 2007). Video-based tracking difficulties are able to make an appearance due to instantaneous object motion, pattern-change presence, occlusions (people-to-scene, people-to-people, people-to-object), and camera motion in general. Imaging setup is

heavily influencing on the performance of automatic monitoring. For instance, bird's eye view scene capture is one way to keep away from critical obstructions and the resultant conflicts with pedestrian observation and tracking. Nearly in many occasions, nowadays commercially available video-based pedestrian counting sensors depends of such arrangement.

Numerous of constructed environments have an architecture that makes no attempt to importantly permit full video coverage. An entire building might require overdone security cameras everywhere. Furthermore, the plafond elevations are frequently short, for instance in subway environments, which are going to conduct to shallow observing angles with the associated severe correlative obstruction (see Brandle et al., 2019 for details). A large number of cameras might request an inappropriate hardware setup. A single implanted device such as smart cameras combined with video sensing, processing, and communication are able to consequently keep away from video transmission and hardware assets for video processing. A rundown of distributed smart cameras can be found in Rinner and Wolf (2008).

Regarding heavy crowds of pedestrian, it is commonly acknowledged that the object-based direction approach method is only able to make up to a definite complication and compactness of people. For crowded scenes with numerous individuals, the requited occlusion become so drastic that presently there are no tracking algorithms are able to operate them productively, despite the fact a multi camera approach is available in hand. The subdomain of the large number of people survey deals with information removal without depending on individual object tracking (Zhan, Monekosso, Remagnino, Velastin, & Xu, 2008).
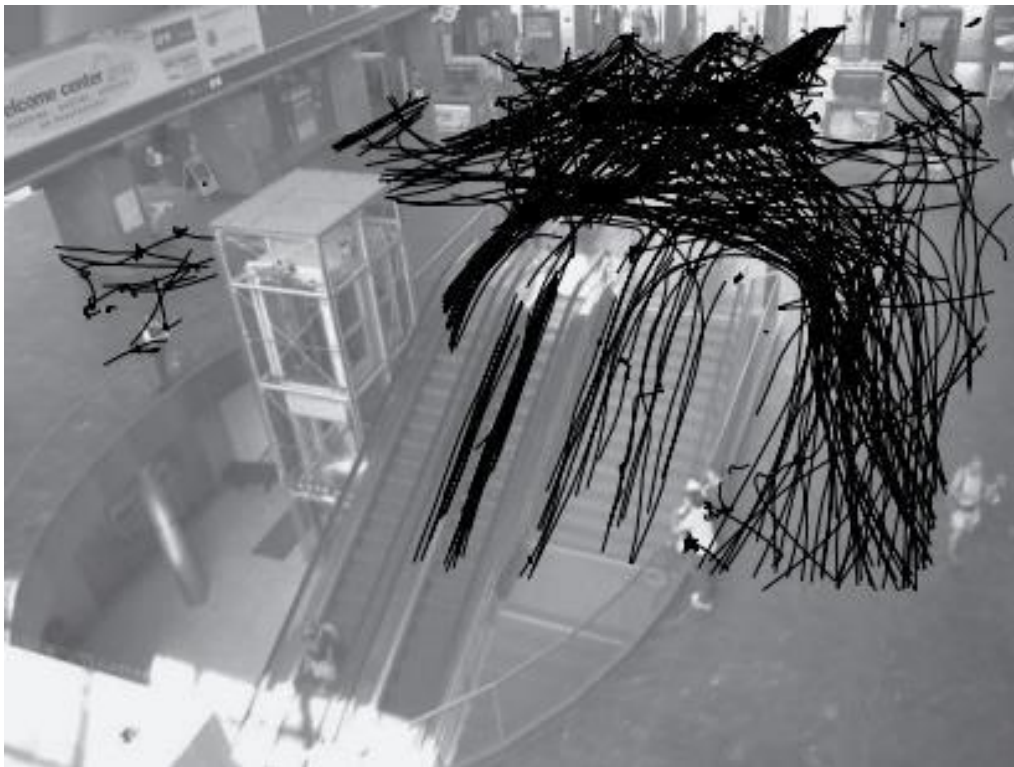

Figure 4. Trajectory Data of a Train Station Hall Computed with Automatic Video-Based Tracking
Source: Brandle et al., 2009

RESULT AND DISCUSSION

Pontianak Waterfront Behavioral Mapping

The diagram below is the behavioral mapping in Pontianak Waterfront. The observation is taking time at somewhere around 16.00, where there are lots of activities on the space. Covid-19 limitation makes it harder to observe since many people are still getting close among each other and not wearing mask at the time. Well-designed public benches are installed in order to create various types of sitting and gathering behavior. Some people sat their feet down or just sitting cross-legged on the wooden surface. The ceramic soil-holder on the edge also can be used as seating since the width is supporting enough.
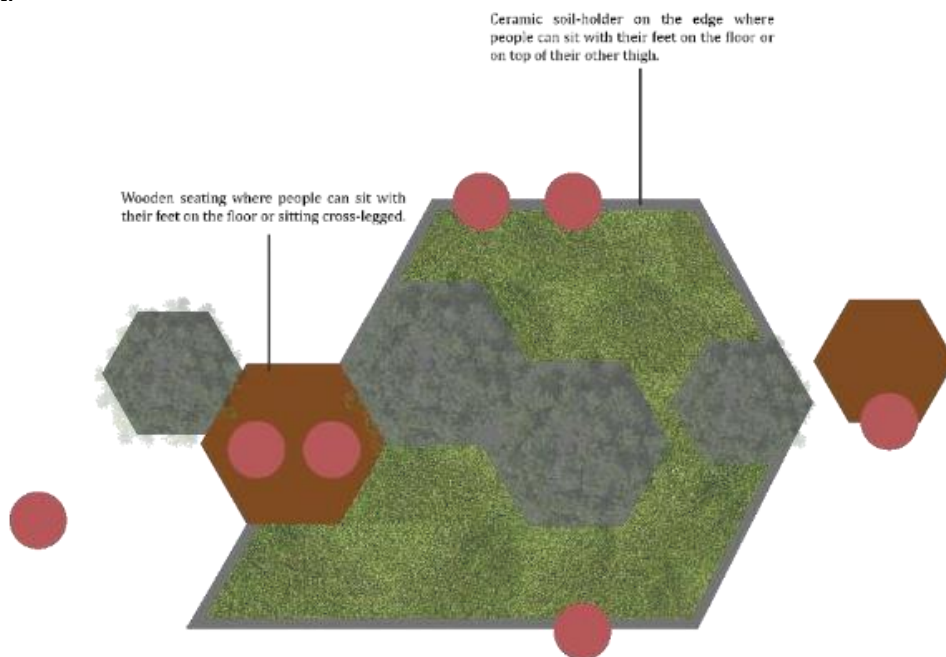

Figure 5. Seating layout Behavioral Mapping in Pontianak Waterfront
Source: Author, 2020

Figure 6. Seating layout Behavioral Mapping in Pontianak Waterfront
Source: Author, 2020

Figure 7. Activities and Situation in Pontianak Waterfront during Afternoon
Source: Author, 2020

Figure 8. Activities and Situation in Pontianak Waterfront During Afternoon
Source: Author, 2020

Pontianak Waterfront Video-Based Tracking

The picture below was taken in Pontianak Waterfront at somewhere around 16.00 o'clock. Considered to be the busiest section of the place, many activities can be seen, from people doing business by selling goods to housewives having family time. There are

actually three sitting areas that can be directly seen from the point of view of the picture, with the last one being right where the picture was taken. During busy times like this, occasionally the sitting area is full. Unfortunately, the awareness of COVID-19 virus spread is still low in this place which, makes this video-capture process a little difficult to tackle.

Figure 9. Trajectory Data of Pontianak Waterfront Taken with Time-Lapse Video Camera.
Source: Author, 2020

Concluding from the information gathered, Pontianak Waterfront is one of the predominating places in the city. Many aspects can be analysed especially the human behavior including how they walk around the waterfront and how they adapt to the available sitting areas. The positive aspect concluded from the observation is that many there are many people active on the area, which makes the area more liveable and sustainable, increasing the morality of the city. Furthermore, many trade and economy activities in the waterfront supporting the economy of the families and the inhabitant that lived near the area. However, of all positive things there are also the negative things. Despite the situation, people are still having activities around, mostly because the low awareness of COVID-19 disease and the mandatory aspect of it; they are still doing business in order to increase their revenue. They did not have any other choice to do it to provide living for themselves and for their families.

In accordance with Jahn Gehl's lecture on Places to Sit and Pause (2004, p.32), the study result can be matched. The presence of the benches gives the opportunity to enjoy the main attraction of the space, despite other use such as vendor installation on it. People's choice of sitting places is able to be related to population or the community structures that occur at the boundary of various domain. Furthermore, regarding the behavioral sitting pattern happening in the area, Behavioral Mapping (Place-Centered Mapping) is a great method in order to gather information regarding the topic. Not only the circulation of the people can be analysed, but also how they interact with the design of the sitting area. On the other hand, the downside of this method is the detailed activity information in a long period of time might not be able to be gathered. Nevertheless, the

important information is able to be gathered and analysed, which is a big help in order to bring the objective in this paper.

It can be discussed that, perhaps, the designer overlooked, or unable to predict, the activities that are happening in the future use. In some cases, the vendors there are using, what is seems like, public facilities (sitting areas) and sitting on the floor as their space for selling their products instead of using their own specific space for vendors.

CONCLUSION

It has come to conclusion that the Pontianak Waterfront sitting area design does affects the behavior of the people who uses the space. Many activities happened in the waterfront, whether it is casual activities or transaction activities. Due to the "unfree" spaces available for the vendors to sell their products, the way they behave is by sitting on the floor to set their stall or even to take, what is seems like, sitting areas provided for the public use.

This research paper is written without the intention to provide the solutions of the conflict discussed. However, this research paper does formulate some of the complications regarding the sitting spaces available in the area. On any occasion, this research paper is able to come into consideration within further revitalization development process for the design of Pontianak Waterfront in the future.

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