Physical Distancing Concept of Public Space Placemaking in Post Covid-19: A Study Precedent

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Abstract. Physical distancing is part of the design process affected by the spread of Covid-19. 4 work precedents use physical distancing due to the Covid-19 as part of the problem that must be overcome by adapting and finding new design strategies. This paper analyses a precedent study on a public space design proposal designed for post-Covid-19. This paper aims to provide an overview of the design strategy concept to become a design reference as a solution to Covid-19 Pandemic. The method used in this paper is a precedent method by analysing the case studies that relate between public space and physical distancing with placemaking and physical elements. The results of this paper show that the various functions of the public space proposal show a variety of design approaches in the form of public with considering the physical distancing.

1. Introduction
1.1. Public Space in Covid-19
The Covid-19 pandemic has changed how public spaces began to change from public to private [1]. Parents, the children and the community choose to make their public spaces no longer shared. The limitations of social distancing make many people leave public open spaces and decide to create their own in their private areas like at home. The house is an essential part of forming these public spaces that move from place to place. The social life that human needs began to replace from face-to-face became virtual. The development of the spread and impact of the Covid-19 has had its ups and downs. Judging from the story of the WHO in Southeast Asian countries, especially Indonesia and its surroundings, it still shows a significant increase in the mortality rate. [2]Although the death rate is still showing an increasing number. The healing rate is also increasing with a positive response.

1.2. Physical distancing as a new aspect to design Public Design
Physical distancing is a new consideration in designing. It is one way to prevent the spread of Covid-19. WHO states that physical distancing can help reduce the spread of Covid-19 with a distance of 1 meter and avoid gathering large numbers of people. [3] It refers to new considerations in designing public spaces explained by UN-Habitat in the report on Public Space. It explains that the Covid-19 pandemic has changed direction the proximity of residents to the street, public spaces and public facilities. Therefore, public space is an important part that must be considered and be ready to respond and adapt to the existence of Covid-19. Public Space prepares to adapt to various functions. For example, the food market can prepare with temporary forms or patterns. Communities spaces can develop in small spaces or pop-up community health centres to facilitate food needs in distribution and food gardens. A common space can use the highway for street vending and leisure activities such as watching TV and Others. [4] Long before the Covid-19 pandemic, Jan Gehl wrote a book about the importance of the
human dimension in developing a city that affects public space, such as lively, safe, sustainable and healthy cities, which are essential concepts in the 21st century. It affects the quality of city public space. It will be a long-term investment for a sustainable city. [5]

1.3. Placemaking developments in the face of the Covid-19 Pandemic situation
Placemaking is not a new approach in public space design. However, the development to respond to the situation provides various responses to adapt it for public space sustainability. Porch Placemaking is one of the new variations of the approach to using placemaking. It is a spontaneous response to differences in cities and countries without any design guides at the pandemic’s beginning. Tamura’s journal explains Porch Placemaking and the spatial relation between working during and after Covid-19. Social placemaking can quickly create placemaking's character on a micro-scale, led by individuals and supported by communities.[6] This paper uses the placemaking criteria from PPS, accessibility, user and activity, comfortability and sociability. [7] It is associated with the basic physical elements of the building from vertical and horizontal elements. According to Ching’s book Architecture: Form, Space and Order. It explains that two things can define a space: horizontal elements and vertical elements. [8]

1.4. Design Strategy Concept in Design Process
is from the need for public space that requires consideration of the latest issues, physical distancing by reviewing precedents. It is possible to analyse and add references to the appropriate design strategy concept by studying design strategies on several projects, for example, from world architects with various characteristics. Exploring the design strategy concept is a design process that consists of 3 phases, knowledge, invention and developing tools. [9]

2. Materials and Methods
This paper discusses the precedent studies of various projects that impact the spread of the Covid-19 virus. This precedent study uses a descriptive method with precedent by linking the theory of public space and the unique needs of space to the presence of Covid-19. According to this precedent Study, it is a research method that provides an overview of the concepts and design strategies in designing public spaces and the constraints. In this method, the author reviews urban design projects that impact Covid-19 and analyses the design strategy post-Covid-19. The theory makes a good space a great good place while still managing physical distancing.

The Precedent Study provides three forms of knowledge: precedent is concrete, precedent is relevant, precedent can use repeatedly and differently each time. [10]. From a precedent study taken with the design approach of response to post-Covid-19 in physical distancing. The data is examined for similarities, then compared to its physical elements. The placemaking approach is the key to forming space, especially in public space, by describing the physical elements formed as a result of the response to the prevention of Covid-19.

2.1. Data
The data used in this paper uses existing secondary data dan re-analysed using sketches and diagrams to get a design strategy concept from all case studies in public space used as data.

This data are making a formulation based on the elements of the placemaking in the public space. These are five projects that were used as material analysing. [11] The data is obtained from various information and is associated with analysis indicators. [12]
Table 1. Public Space Design Conceptual in Post Covid-19.

| Number | Name of Project       | Location       | Concept of Public Space      | Functions of Public Space |
|--------|-----------------------|----------------|------------------------------|---------------------------|
| 1      | Parc de la Distance   | Vienna Austria | A labyrinth-like park       | For recreation park       |
| 2      | Rimbin Playground     | Berlin         | Infection free Playground    | Playground                |
| 3      | Hyperlocal Micro Markets Concept | Shift design to keep the vital function | Markets                  |
| 4      | Gastro Safe Zone      | Brno, Czech Republic | Distance set by authorities in circle of life | Open space with restaurant windows |

Sources: archdaily.com, dezeen.com, shift.au.com

Figure 1. Image of projects used as precedent

a. Park de la Distance, b. Rimbin, c. Hyperlocal micro markets, d. Gastro Safe Zone

Sources: [11], [13], [14], [15], [16], and [17]

2.2. Analysis

According to PPS, a good public space explains four things that affect the quality of public space: access and linkage, uses and activities, comfort and image, and sociability. In this paper, the author analyses four aspects of the case study as a precedent for a design strategy by adapting to a pandemic. The analysis of the four aspects above is also associated with standard advice for the public from WHO, maintaining a minimum distance of 1 meter from other people, washing hands, and using masks. The Design aspect needs to see the flow of entry into the public space or the rule. Therefore, only in the aspects of social distancing can be used as points of analysis related to the formation of this public space.
3. **Theoretical Review**

In this paper, the author uses several theories to analyse the theory of placemaking, public space which is associated with the issue of physical distancing due to the prevention of Covid-19. In this paper, the author examines the designer's responses in designing a public space due to physical distancing. For this reason, it is necessary to understand the physical distancing procedure and what physical elements can affect the concept of design strategy in public space, especially in the post-covid-19 period.

3.1. **Design Strategy Concept has to respond**

Physical distancing standard of WHO. WHO issued a standard to maintain a distance from one person to another in open spaces with a 1-meter distance. [3] This distance cannot be separated from the process of keeping transmissions other, wearing masks and washing hands. However, in this paper, the author focuses on the physical elements that make up the space, the standard of distances, which is the reference for the precedent analysis process. From the four precedents, it observes the character of space form.

3.2. **Make a better Public Space with Placemaking**

According to PPS, the place making of public space is formed in four important aspects: access and linkage, comfort and image, uses and activity, and sociability. [7] PPS explained that it is indicators to make place successful. Here is a keyword usage table that explains the four aspects. It selects aspects that describe the character of public space. All key aspects of success in public spaces with a placemaking approach are examined by comparing the concept of the formation of physical element from horizontal and vertical.

### Table 2. Elaboration key elements of Placemaking Successful keys and Physical Distancing Indicators

| Element of Placemaking | Indicator of successful key in public space with place making approached | Indicator in Physical Element (Vertical and Horizontal Elements) | Parameter of Description Evaluation |
|------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------|

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Figure 2. Diagram Theory dan Analysis

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| Accessibility | Connected | Form | Connection one person to another, easy to reach, but still keeping a distance. In the form of dividing wall, from a massive wall or plants |
|---------------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------|
| Comfortability | Attractive, | Form Concept, time and function | Get people interested, make people sit down, keep people safe can still see each other at a safe distance. |
| Sittable | Form, distance, time | |
| Safe | Form, Material (Nature/artificial) | |
| Activity | Active | Form, Floor Level | Floor Level, Location Differences in time period and Make activities special and fun |
| Fun | Scale | |
| Special | Form Concept | |
| Sociability | Welcoming | Distance | Makes the impression of inviting people, can be used for all ages and inclusive |
| Diverse | Scale and Time | |

3.3. **Design Strategy Concept based on elaboration key element between physical and place making elements**

In design, there are design principles and how a space is making in physical form. According to Ching, space is formed from point, then lines and planes. [8] In addition, the form of space divided into vertical and horizontal elements. In this case, knowing the strategic design concept of public space in post pandemic Covid-19 by observing the physical elements that affect public space's success is seen from the place-making approach. UN Habitat has guideline for Governments to focus on responding to the public sphere in 2 categories, short-term interventions and medium-long-term interventions. In this paper, the author loo how the handling in a short time as described above is related to Porch Placemaking. [6]Key areas of focus related to physical elements such as time with flexibility of time to access public space and function and distance with well-connected and integration. [4] The result of this precedent study in line with physical design and placemaking principles.

3.3.1. **Parc de la Distance as Precedent 1**

Studio Precht creates a proposal design of green space with approach to physical distancing or social distancing standards. The Public space designed to be located in Vienna, Austria, Social distancing and short team solitude are the meaning of the concept’s name. The shape of this pubic space is inspired by the circular fingerprint shape and is made with the concept of a maze garden. [13]

3.3.2. **Rimbin Playground as Precedent 2**

Rimbin Playground is a design proposal designed by Berlin’s Designer Martin Binder and Claudio Rimmel. In this work, the designer brings the concepts of “infection-free” in a playground so that children can play safely during a pandemic. This concept gives children individual spaces into their own cluster of spaces. Each child can play with in an individual space but can still interact with their friends. [14]

3.3.3. **Hyperlocal Micro Markets as Precedent 3**

SHIFT architect creates design proposal to respond to the public space design process that was adapted to Covid-19. [1] This project aims to innovate public markets, which is the main need of all residents,
especially during Covid-19 pandemic. In this project, the concept of shift design operation is used by setting the number of buyers within the designed space limit. [15]

3.3.4. Gastro Safe Zone as Precedent 4

Gastro safe zone is a design proposal using physical distancing as part of the problem that must be solved. HUA HUA Architect as a designer imagines a Gastro Safe Zone with the concepts of gastronomic businesses from regulation when eating dine in. The circle safe zone is designed by placing dine in area and limited space with a circle line as a marker of the safe zone boundary for eating. [16]

| Table 3. Finding of Design Strategy Concept elaborate with place making and physical element |
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| No | Parameters | Indicators | Physical Element | Precedent Project Strategy Concept |
| --- | --- | --- | --- | --- |
| 1 | Accessibility | Connected | Form | Connecting with parallel lanes | Connecting with Cluster of water-lily pads on pond | Connectio n with Shift design operation | Connecting with transparent safe zone designed by physical distancing authorities |
| 2 | Comfortability | Attractive | Form, Concept, time and territory | Labyrinth concept park | Cluster concept in a group of individual play areas | Shift Level Concept to keep the vital function of fresh market | Grid Safe Zone attract people to give suggestion to sit while waiting the food ready to take away |
| 3 | Sittable | Form, distance, time | Sitting area in every parallel lane | Sitting in every cluster spot | There is no sitting are, everyone has limited time with shift concept | Sitting are in the circle grid safe zone with criteria designed by authority aspects |
| 4 | Safe | Form, Material (Nature/artificial) | Natural barrier in 90 cm vertical partition to keep social distancing | Playgroup in cluster with a group of individual play areas | Safe in que line zone are | Transparent circle safe zone in horizontal element |
| 5 | Activity | Active | Form, Floor Level | Recreation parallel lanes pathway in 600 meters length | Active activity with cluster spot in different ground level and children can communicat e with each other in safe distance | Everyone active in que line to buy fresh food | Active with open spaces into shelters and characterised zones |
Special Form Concept

| Feature       | Precedent 1                                      | Precedent 2                                      | Precedent 3                                      | Precedent 4                                      |
|---------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Vertical Elements | Natural barrier in every parallel lane          | Vertical element in every cluster spot with metal material to be easily sanitised | Portable fence                                  | There is no vertical element can be seen         |
| Scale         | In every lane has different experiences         | Play platforms in different types of activities and games, play with sand      | Everyone can buy fresh food in safe zone        | Everyone can choose the safe zone regarding from the physical distancing |
| Special       | Special with the concept as fingerprint         | Special with the concept of individual playing platform with separate entrances but still see and communicate with each other | Shift design operation in every market in the city | Special with transparent, safe zone              |
| Diverse       | Designed in the centre of the city             | Designed in the centre of the city with large open space, every cluster spot has its own entrance | Propose Design in every market                  | Designed in the centre of the city               |
| Sociability   | Welcoming Distance                              | Everyone can access, children play in the cluster, elder in around              | Everyone can access with queue line             | Everyone can access                              |
| Results and discussion
The analysis results showed that these four precedents have quite a variety of forms but still have similarities in determining public space, accessibility, comfortability, active and fun activities, inclusive and welcoming to everyone. The design strategy concept that is widely used is to divide individual spaces in a path limited by vertical elements and create territorial boundaries and floor level differences. However, from all the distance limitations, these projects still show social interaction with all users even though they need to be limited by a certain distance.

Table 4. Finding The Key Physical Element in Design Strategy Concept

| No | Physical Element | Physical Element | Precedent 1                                      | Precedent 2                                      | Precedent 3                                      | Precedent 4                                      |
|----|------------------|------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| 1  | Vertical Elements| Scale            | Natural barrier in every parallel lane          | Vertical element in every cluster spot with metal material to be easily sanitised | Portable fence                                  | There is no vertical element can be seen         |
|    | Form             | Circle barrier in every parallel lane           | Circle cluster spot with different floor level | Only in line portable fence                     | Non                                             |
|    | Material         | Natural          | Metal material with easily sanitised           | Metal                                            | Non                                             |
|   | Horizontal Elements | Form | Circle circulation | Circle Cluster with different entrances | Square with que line sign | Circle safe zone with yellow line boundaries |
|---|---------------------|------|--------------------|----------------------------------------|--------------------------|---------------------------------------------|
| 2 | Distance            |      |                    | Physical distancing in the circulation pathway | Physical distancing in every circle cluster spot with different entrance | Physical distancing in between circle of safe zone |
|   | Floor Level         | Split floor level | Split floor level | In the same level in large square plaza | In the same level in large square plaza |

**Figure 3.** Sketch of Design Strategy Concept of Park de la Distance (a), and Rimbin (b)

Source: [11], [13], [14] and redrawing of the author

**Figure 4.** Sketch of Design Strategy Concept, Hyperlocal micro markets ©, Gastro Safe Zone (d)

Source: [11], [15], [16], [17] and redrawing of the author
The analysis results show that the design strategy concept of public space found with related criteria for public space according to placemaking and physical element

- Accessibility is limited by physical distancing, providing an opportunity to adjust the pattern and shape of vertical and horizontal elements to vary from lines and circles to restrictions on time.
- Comfortability and activity are interrelated because of the user's needs for public space. Comfort while maintaining distance is an essential part of implementing the concept.
- The user sociability of public space can affect the reactions to see and interact even with a limited distance.
- The design applies from the vertical and horizontal elements with a variety of parameters and indicators from scape, form, material, distance, floor level. It relates to time and function flexibility.

This paper only comes to the physical aspects as data support. At the same time, we still need to think about other aspects than physical aspects like social, cultural and economic aspects that also affect the placemaking of public space. Another recommendation is to conduct research or studies on non-physical elements.

5. Conclusion
In this paper, the author finds several design concept strategies in designing public spaces with various functions and contexts but have some similarities, namely the use of boundaries/territory as a concept and the change of time with time management.

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