The Impact of User Behavior in Transforming Food Counter Design during Pandemic Era at Hotel Restaurants

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Abstract

One of the objectives in interior design is to meet user needs based on their behavior in doing activities. As part of interior elements, furniture design has been transformed in terms of form and function adapting to the pandemic situation. This pandemic period had a great impact on furniture design for public spaces in accommodating the health protocols. A hotel restaurant is a public space that continuously provides services by serving breakfast for hotel guests. Although some hotel restaurants were closed temporarily due to the pandemics, it is found that adjustments meant had been done by hotel management. A food counter is one of the pieces of furniture in a hotel restaurant that has been adapted to support health protocol. Various changes occurred at the food counter with different results. How food counter transforms to adapt to the needs of the user, is an interesting topic to discuss, whether the implementation of the adaptation carried out has met the criteria for a good design to support sustainable design as well. This study was conducted through a literature study and a site visit to the hotel restaurant area. Guest satisfaction is the highest priority in the hospitality industry. Designers are expected to contribute by adapting food counter design to maintain the continuity of design, function, and material and preserve the ambiance of the restaurant based on the concept. Sustainable design needs to improve society constantly and provide solutions to existing problems. The result of this study can be used as guidance in designing food counters to achieve sustainable health protocol in public spaces related to restaurant facilities.

Keywords
User behavior, Food counter, Health protocol Pandemic and hotel restaurants.

1. Introduction

The pandemic period has had a major impact on all sectors. One of the impacts is the changes in space and furniture in a public area. For the last two years, most of the policies issued by the Government are related to Covid-19. There are implementations of regulations regarding public safety and prevention to restrict public mobility. The commercial space and hospitality industry has been temporarily closed to reduce activities and prevent virus transmission. User behavior has so far influenced the design and is slowly being directed to follow the health protocols to stay safe during their activities in public areas.

Nowadays, it is often found that furniture as a facility in public space is distracted by the prohibition of use due to providing physical distance between one user and another. This situation brings opportunities for designers to provide solutions in proposing furniture design that has objectives to put user safety first and follow health protocols. This also determines that in an interior, furniture design should support the user’s needs in keeping their distance always maintained. Health protocols are regulations that must be obeyed by all levels of society. This regulation has several standards that should be implemented especially for public buildings by limiting people’s capacity in each area, providing body temperature measurement facilities, and scanning barcodes for vaccine proved using the pedulilindungi application (pedulilindungi, 2020).

2. Literature Review

Before and during the pandemic, hotel guests’ experience determines six factors that are significantly mentioned in the online reviews: Case studies luxury hotel review in Shanghai, China in 2020. They include services, room quality and settings, hotel facilities, dining, location, and environment (Cheng, 2021). It shows that the hospitality industry is
expected to continue during the pandemic. The hospitality industry has responded quickly to adapt the health protocols. There have been modifications to several facilities found in the hotel area, for example, the lobby, lounge, and hotel restaurant. As the most important facility in the hotel, the restaurant has a significant role in serving breakfast for the hotel guests. Generally, hotel restaurants used a buffet system for serving food or breakfast (Putri, 2018). This system requires a great adjustment so the food service can be prepared well. The buffet system is commonly found as a breakfast served in restaurants before the pandemic era. This system provides convenience in serving hotel guests, where they could easily select their dishes based on their preferences. However, the buffet system has a high risk of transmitting the virus. It has a high flow activity with irregular circulation, and frequent contact with cutleries and serving plates as well. A combination of buffet system and assisted service is recognized as semi self-services.

Therefore, it is important to organize activities in a hotel restaurant. How does user behavior affect furniture design that occurs in hotel restaurants during this pandemic? This will be the focus of the study. The changes found in furniture at the hotel restaurant are carried out by hotel management to serve and protect the hotel guests. It is also an effort to reduce the risk of hotel guests being exposed to the Covid-19 virus. The activities during utilizing furniture in interior space should be identified to fulfill the anthropometric and ergonomic aspects. Though furniture has its function and dimension it also must consider health protocol requirements. Good public space is expected to be responsive, democratic, and meaningful (Mehta, 2014). Thus, it is necessary to develop the conception of an interior restaurant that covers these criteria.

A hotel is a type of accommodation that uses part of all buildings to provide space to stay, food and beverage and other service facilities where all services provided are for the public, whether staying overnight or only using the facilities owned by the hotel. According to Ardjuno Wiwoho’s definition of a restaurant based on the Directorate General of Tourism 1990/1992:

“Restaurant is one type of business that is located in a part of all of the building, equipped with space for storing, serving and selling food and beverages to the public at its place and fulfilling the term and condition” (Wiwoho, 2008)

According to Conroy, the pandemic shined a light on where people can be more sustainable in nearly every area of their lives. “Sustainability was already on the rise before covid and now it seems like it has pushed a lot of effort from an ideology to reality. Every decision must be intentional and thoughtful to obtain the desired outcome, with minimal impact to the environmental footprint” (Killian, 2020). Based on this consideration, designing the interior for a pandemic era cannot be separated from the sustainability design concept. Covid-19 may present an opportunity to integrate a health perspective into planning in new ways (Jordy, 2020). Through this study, it is expected to see how good design is applied in furniture modification to achieve the safety aspect based on the health protocol.

There had been a study on interior restaurants in Dubrovnik, Croatia conducted by Marija Pecotic. She studied how interior design influenced customer satisfaction. She said that the study showed that furniture design is less important than comfort and most participants in this study were willing to pay more for a restaurant that is designed according to their preference (Pecotic, 2020). The result of this study shows that customers still prioritize comfort in visiting restaurants, and furniture is one of the elements in supporting the coziness in the restaurant. Therefore, the design of furniture in a hotel restaurant must prioritize function to achieve user needs where the aesthetic aspect is expected to support this function as well.

3. Methods

The study was conducted through literature data and site visits. Comparative studies are applied to analyze data collected based on literature study and pictures taken from documentation while site visits. Due to the pandemic period, most hotels have prepared some adjustments to respond to the health protocols to protect hotel guests and their staff as well. Three hotels have been visited, they are Alila hotel in Solo – Central Java, Santika hotel in Cirebon – West Java, and Discovery Kartika Plaza hotel in Bali. Selected hotels represent tourist areas in Java and Bali. The founding will be analyzed the food counter design in hotel restaurants based on consideration of function and aesthetic aspects with the purpose of a good design.

These good design criteria do not have to appear in all aspects of the food counter design. However, it is to see whether the good design aspect became a consideration in developing the transformation that occurs at the food counter. For the time being, this transformation must achieve the standards in health protocols. The result of this study is expected to identify the aspect of good design that can be applied and adapted to the requirements of health protocols.

4. Data Collection

It is found that there has been an adjustment in the food counter at the hotel restaurant. The design has been modified to achieve health protocol requirements. Even though it is only temporary, user behaviors in the hotel restaurants are directed to follow the guideline to maintain the distance that impacts the counter design. User behavior, ergonomics, material, and finishing are the aspects that need to be considered in exploring food counter design for hotel restaurants in bringing together the function and aesthetic into good design. Good design principles are intended to follow in developing food counter design, especially during the pandemic era. The modification that has been made not only to protect hotel guests, but it is also to apply the good design aspect as their final design. It is to enhance the function of furniture in protecting hotel guests, prioritize health protocols in maintaining food hygiene, and avoid direct contact between hotel guests and staff.

The health protocols in Indonesia have five regulations to apply in doing activities. There are to wear a mask, clean hands regularly, keep a distance of at least one meter, avoid crowds, and reduce mobility (Department, 2020). These regulations are given to maintain the human behavior in their activities in the public spaces, to avoid the Covid-19 virus. Regarding these regulations, hotel restaurants have applied some modifications through adjustments in several areas, especially for a counter table that served the food to hotel guests. Generally, the adjustment in the food counter provides a border between restaurant staff and hotel guests. This supports the aspect of keeping a distance at least one meter away. In addition, protection is also provided to prevent the falling droplets which are a medium for virus transmission.

Among all various types of hotel restaurants, the main dining room type is selected as the focus of the study. Generally, this restaurant is serving breakfast, lunch, and dinner menus for hotel guests. However, in terms of service, the restaurant serves the packages including a set breakfast menu for a capacity of two guests per room. This requires the hotel to prioritize the restaurant in responding to the need for implementing health protocols in layout and furniture design. Modify is putting other elements into existing furniture to adjust the design, but it only works for the short term or temporarily. It is done to maintain the sustainability of the design concept that supports the restaurant ambiance.

The data was collected from site visits to three hotels in Indonesia that have been ranked three to four-star hotels. Furniture hotel consists of a dining table, dining chairs, stools, food stalls, banquette, cashier counter, food station or sideboard, and food counter. Among the furniture in the hotel restaurant, it is found that the food counter has different adjustments in responding to the health protocols regulation. While the dining table and dining chair are arranged by
setting a safe distance for hotel guests so they can do their activities safely and comply with health protocols. This is
to explain why the food counter was selected as furniture to be discussed further in this study.

The food counter is a facility that is used in bars, pubs, and restaurants to serve the customer by providing food and
drink. There are two types of counters, (1). Counter that involves seating for customers to place an order, which the
food and drink are prepared and served at the bar. This type allowed the customer to sit facing the counter while
consuming the food and drink. (2). Counter that allows the customer to place an order, but they need to remain
standing, while the order is prepared and placed before the customer on a tray, afterward customer proceeds to dining
area, where tables and dining chairs are available (Tatum, 2021)

Sustainable architecture has become the main consideration in how buildings or cities are being built. There are three
aspects of sustainable architecture that affect humans. There are three aspects of sustainable architecture that have an
impact on human life. There are environmental benefits, economic benefits, and social benefits (Barker, 2020). In
this discussion, the social benefit aspect is the aim to be achieved in improving living conditions, health, and comfort
of the inhabitant. Interior design that supports health protocols requires furniture design that could prevent the
transmission of the covid-19 virus. It is hoped that the food counter could meet these criteria as well as improve the
living conditions, health, and comfort of the inhabitant.

4.1. Hotel Alila – Solo, Central Java
Alila Hotel located in Jl. Slamet Riyadi No. 562, Solo - Central Java. Alila Solo has eight towers of accommodation
surrounding the main hotel tower at staggered heights, positioned to create a star-like pattern of interior corridors.
This hotel has an avant-garde design, with a formidable palette of stone and marble, softened by light finishing of
wood and batik motifs as accents. The executive lounge and rooftop bar are surrounded by panoramic views spanning
spectacular of the region’s valleys and volcanoes (Alila, 2013).

Epice is the restaurant in Alila Hotel. It serves a menu from breakfast through to supper. The dining area is in the
middle position that surrounded by a food counter. Epice restaurant has several food counters that have transformed
in responding to the requirements of health protocols. As shown in Figure 1. below, the counter for serving the main
menu has shields made of transparent material such as acrylic. It has a perpendicular angle from the top of the food
counter. It is to keep the distance since the backside of the food counter has a stove where the chef prepared the dishes.
This counter has been modified to protect the staff hotel and guests’ hotel as well. Acrylic has a transparent effect to
provide a transparent border so that hotel staff and guests can communicate and do not feel separate. It has a see-
through effect that also maintains the openness of food processing which translated into an open kitchen interior
concept. Although the buffest system is maintained, the guest’s flexibility in self-service does not allow. To maintain
the cleanliness of the food counter area, acrylics need to be re-installed regularly. In the long term, acrylic material
will turn yellowish, and that is not appropriate to keep this appearance in serving the hotel guests. This treatment
worked the same for a food stall in gerobak design.

The height of the acrylic is on human height level, above 150 cm from the floor. The acrylic approximately has 70 cm
in height from the top table. It is to obtain the safest distance between the two sides, as it is lowering the risk of virus
transmission through droplets while the guests were ordering the menu. The chef or hotel staff stands behind the
counter to serve hotel guests that stand facing the counter. The dishes prepared by staff as ordered by hotel guests, to
keep them warm. The adjustment in furniture design in Alila Hotel does not reduce space for staff hotel to do their duty, instead, it supports the health protocol that needs to achieve through design.

The other food counter is shown above in Figure 2. The treatment on top of the counter has a different design compared to the first one. The frame is made of iron that has a trapezium shape. The upper is part covered with glass, while the lower part is unfilled. The glass is applied to cover the dishes. The frame height is approximately 50 cm from the top counter. Thus, in overall height is 140 cm from the floor. The activities behind the counter still can be seen by the hotel guests. The purpose of the trapezium shape is to allow the guests to see the variety of dishes that are served on the counter and select the menu they wish to have. The inclined plan in trapezium makes hotel guests easier to look at dishes carefully. The purpose of the gap is for efficiency since there is no necessity in applying glass to cover this area. The glass applied on the top counter is used as a shield from virus transmission through droplets. The queuing line bar is placed to guide the flow circulation of the hotel guests. Hotel restaurants serve breakfast from 6.00 am to 9.00 am. The peak hour at breakfast time happened around 7.30 am to 8.30 am. This condition creates a crowd in some areas, specifically in the main dishes area. Crowds are not allowed in the health protocols. This was responded to by organizing the queue of hotel guests to the food counter which was served with an assisted service method. The queuing path is managed by the hotel management to keep the flow circulation in the restaurant area maintained.

Figure 3. The flow circulation directed by queuing line bar
(Roesli, 2021)

4.2 Santika Hotel, Cirebon – West Java

Santika hotel is in north Cirebon, at Jl. Dr. Wahidin No. 32, West Java. Santika Indonesia hotel and resorts is a local hotel chain under the management of PT. Grahawita Santika. It was established in 1981. It provides uniquely Indonesian hospitality in each city in Indonesia and serves with its brand values Indonesian home and service motto “Hospitality from the heart”. This hotel provides business and leisure travelers with a combination of classic Javanese design with modern amenities (Santika, 2021)

Taman Sari Restaurant is on the ground floor of the main building. It is a modern restaurant where guests can enjoy a variety of cuisines for breakfast, lunch, and dinner. It has delectable dishes ranging from traditional to international cuisines. It also has a refreshing view overlooking the swimming pool. The interior restaurant is inspired by *pendopo* house as seen in Figure 3. A combination of teak wood in natural finishing and various types of stone creates a warm feeling in this restaurant.

Figure 4. The ambience of Taman Sari Restaurant and the temporary sign on the floor to guide hotel guests around the food counter (Nediari, 2020)
Health protocol applied in creating system regarding the flow circulation path for hotel guests. It is shown in Figure 4, that the circulation path is managed by setting a red line on the floor, using a red tape. There is an ‘in’ and an arrow sign to guide the hotel guests start from the entrance area. Though this sign has function and a purpose in supporting the health protocol regulation, the material that is applied is not applicable for hotel design. The use of red tape gives an emergency impression and does not support the ambiance of the restaurant. Furthermore, red tape has an adhesive that keeps dust which in a short time the floor will look dirty, especially when it puts around the food counter.

The food counter is placed in the center of the restaurant and the hotel guest can access it in a circular pattern in ordering the dishes. This restaurant has assisted service that hotel guests can choose based on their preferences then the hotel staff prepared the dishes. The food counter has acrylic as an additional component that is put on the top table. It created an inclined plan that supports with stainless steel bar as the frame. The acrylic is hanging on the bar, which creates a 20 cm gap between the top table and the acrylic, which is used for passing the dishes to hotel guests that have been prepared by the hotel staff.

As seen in Figure 5, the counter table has a 75 cm in height, and the total height of the counter table and the acrylic is approximately 140 cm. The effort in combining two materials: acrylic and stainless bar have an interesting shape that creates an exposed joint. The acrylic has a rectangle hole that stainless bar bends throughout the acrylic. It has a modular shape of 80-100cm for each module, it creates a gap that makes the appearance less organized. The counter has a variety of dishes to serve to the hotel guests, and it affects the height of the acrylic. These made the appearance of shields on the top table do not have the same height. The use of stainless bars makes the acrylic looks hanging over the counter, though the result gives a light impression, that the construction is not steady. The shield design is quite unsafe since if it is accidentally touched, it might fall and hurt the hotel guests or even the hotel staff.

**4.3. Discovery Kartika Plaza Hotel, Bali**

Discovery Kartika Plaza hotel is in a tropical garden with panoramic views of the Indian Ocean. It offers warm and genuine Balinese hospitality in a relaxing beachfront ambience (Plaza, 2021)

Pond restaurant is the hotel’s largest dining outlet, it is below the lobby with views of the swimming pool and the Indian Ocean. This restaurant serves an international breakfast buffet along with all-day dining. The restaurant's operational hour is from 6.30 am to 10.30 am with standard health protocol applied.

During the site visit, the hotel did not have many guests, so the breakfast service was carried out with an ala carte system in which food was made by order based on the request of hotel guests. Waiters served the hotel guests by taking menu orders. This type of service seems to reduce the mobility of hotel guests in the restaurants since hotel guests sit at their respective tables until the menu orders arrived. With this system, the food counter did not operate properly.
However, it is found that the food counter has adjusted to support the health protocol requirements (Figure 6). The food counter has a shield installed above the top counter. This shield has a temporary purpose which can be seen from the construction that was not permanently installed. The width of the food counter is approximately 70-75 cm, with 80 cm in height. The shield had the same length as the counter, while the width of the shield was only one-third of the counter width. The shield that is used as a protector has a different design from the previous hotel. The shield material is made from acrylic that is attached to a hollow frame and created a triangle shape from the side. The counter height including the shield approximately is 150 cm from the floor. The acrylic position has an inclined plan that aims to make it easier for hotel guests to select a variety of dishes served on the food counter since it gave space to the hotel guests to move forward closer to the food counter. The triangular frame has created a triangular prism with construction detail that supports half of the acrylic height. The hollow frame has a matte black finish. The shield aims to protect the dishes from droplets which are known as the medium for virus transmission. Unfortunately, this shield has not used during the visit. Hence the position of the shield against the serving plate and the activities that occurred in the food counter area has not been seen clearly to be analyzed properly.

5. Result & Discussion
The result of the discussion analyzed the founding of food counter design based on the good design criteria and connect them with their consideration in responding to the health protocol requirements. The food counter might have a different design, though the purpose of the additional component remained the same. Acrylic is selected as the main material for the shield because it is transparent, has less weight, and is flexible. However, acrylic needs to maintain as it turned yellowish for a short period of time. In Table 1 below, there is a comparative study based on food counter design at three hotels visited the ten principles of good design.

Table 1. Comparative study based of the 10 principles of Good Design

<table>
<thead>
<tr>
<th>10 principles in Good Design</th>
<th>Alila Hotel</th>
<th>Santika Hotel</th>
<th>Discovery hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovative</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Makes a Product Useful</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>+</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Makes Product Understandable</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Unobtrusive</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Honest</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Long Lasting</td>
<td>++</td>
<td>+++</td>
<td>++</td>
</tr>
</tbody>
</table>
From the data on the Table 1, the hotel restaurant has managed to create an adjustment in their food counter based on good design criteria. It is interesting founding that even though each food counter has a different design however they have the same purposes in achieving the health protocol requirements. Food counter 2 in Alila hotel – Solo has the most “good design” criteria considered among other food counters. This table also proves that human behavior has an impact on the transformation of food counter design since creativity in finding solutions for achieving health protocols can be realized with different terms of design.

Table 2. Food counter design for Health Protocol Requirements

<table>
<thead>
<tr>
<th>Health protocols</th>
<th>Alila Hotel – Solo</th>
<th>Santika Hotel – Cirebon</th>
<th>Discovery Hotel – Bali</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear mask</td>
<td>Restaurant maintained the buffet system, supported with assisted service, and adjust the food counter design with shield applied to cover dishes from droplet</td>
<td>Restaurant maintained the buffet system, supported with assisted service, and adjust the food counter design with shield applied to cover dishes from droplet</td>
<td>Restaurant change their service into ala-carte menu, not buffet system. However, restaurant has created shield for the food counter, but not used when the survey was conducted</td>
</tr>
<tr>
<td>Avoid crowd</td>
<td>During peak hour the guests were queuing in food counter area</td>
<td>During peak hour the guests were queuing in food counter area</td>
<td>Waiter took orders from hotel guests where guests could wait at their respective table for their selected menu arrived</td>
</tr>
<tr>
<td>Keep distance</td>
<td>The queuing bar placed around food counter to organized hotel guests</td>
<td>The sign used for directing flow circulation of the guests</td>
<td>During the visit, food counter is not used which caused this area unorganized</td>
</tr>
<tr>
<td>Reduce mobility</td>
<td>Hotel guests go to the counter to choose the dishes</td>
<td>Hotel guests go to the counter to choose the dishes</td>
<td>The Ala carte system applied seems to reduce the mobility of the hotel guests in the restaurant area.</td>
</tr>
<tr>
<td>Clean hands</td>
<td>The assisted service reduces contact among the guests</td>
<td>The assisted service reduces contact among the guests</td>
<td>The assisted service reduces contact among the guests</td>
</tr>
<tr>
<td>regularly</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the Table 2. above, it is found that, two from three food counters have been adjusted into the new requirement of health protocols. Each design has achieved the purpose of health protocols.

6. Conclusion
Pandemic has affected human behavior in social activities and interactions. Therefore, adjustment to these conditions in the interior specifically in hotel restaurants produced a product that has minimum processed to optimize comfort without changing many existing designs. The food counter has an additional shield in responding to the health protocol requirements in the hotel restaurants. Transparent material was selected to use as a shield to maintain the distance and keep the food hygienic. Good design principles are a significant aspect to apply in adjusting the food counter since the hotel restaurant has a sustainable concept that cannot be separated from the hotel itself. The result of this study found that the best design principles applied in food counter for shield designs are: (1). Makes the product useful, (2). Makes the product understandable, (3). Honest, (4). Long-lasting, (5). Thorough down to the last details, and (6). Environmentally friendly. These principles can be used as references in designing a food counter that is equipped with a shield. The recommendation for further study is the material for the shield. The probability of material development can also be done through the application of materials that are environmentally friendly with transparent
material specifications. Thus, this reference also can be used to reduce the human impact on the environment, where the counter has been adapted to human behavior and designed to support the health protocols in a public area.

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Biographies
Amarena Nediari graduated from the Faculty of Fine Arts and Design, Trisakti University majoring in Bachelor of Interior Design and Master of Design. Formerly was the Head of Interior Design Department of Bina Nusantara University, presently working as the Enrichment Program Coordinator, Interior Design Department, School of Design, Bina Nusantara University. Based on experience and comprehension in furniture retail, she believed that good design is a design that can provide solutions for everyday life. Teaching experience of more than 10 years in the Essential Design courses, namely Technical Drawing courses, Interior Design Basic Projects, and Interior Advanced Projects.

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