

Design and Easibility Analysis of Workplace Cafeteria in Semarang

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Abstract

The study aims to analyze the standards of cafes and rental offices, types of service systems, various attributes and their meanings by specifically observing workplace cafés. The study observed two cafés in Semarang by reviewing the management applied to the cafe and what effect it has on the layout and their users. To support the analysis, observations were made on the behavioral mapping of the two cafes. By focusing on the concept of a shared dining room, the obtained results showed some attributes that need to be considered such as accessibility, comfortability, and visibility. Behavioral aspect of visitors of workplace cafés are used as guidelines for design recommendations according to the required attributes. Recommending designs are proposed to highlight the easibility of two observed objects. The proposed design is particularly focused on the shared dining room, in order it is in accordance with the architectural guidelines. To support the reconfiguration, three-dimensional visualization is presented.

Keywords: Dining table, design, easibility, workplace cafeteria, attributes

I. Introduction

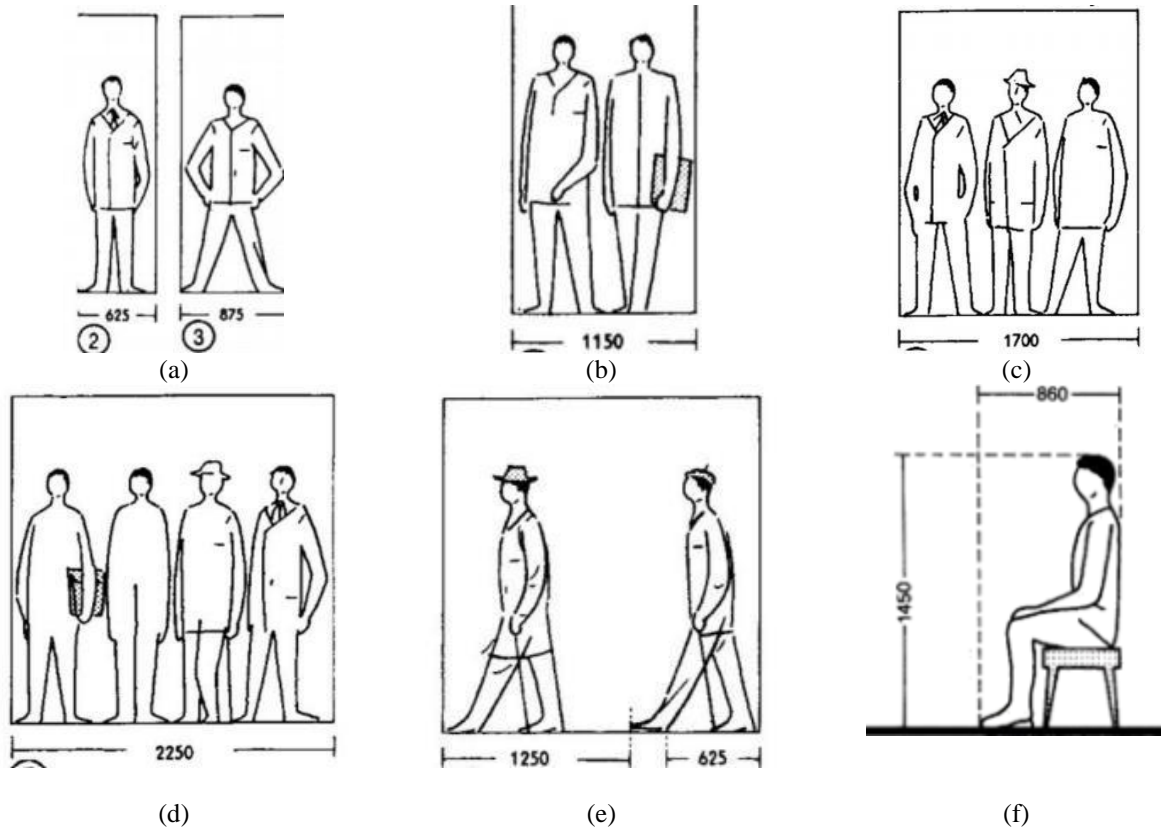
The development of the times allows a building to have various functions, such as an office. Currently, there are various types of offices, one of which is a rental office whose space is rented out for various businesses and services. Types of buildings that are often encountered in everyday life include residential buildings such as houses, flats, and apartments. There are also buildings for health facilities, lodging, education, government facilities, and so on to support the needs of the community. In addition, there are types of commercial buildings such as supermarkets, malls, commercial offices, and others. A commercial office can be interpreted as a building related to trade or commerce so that it is usually rented out for profit. In the office building, there are facilities that can support the continuity of existing activities such as places of worship, toilets, and canteens. It aims to make it easier for workers so they can streamline the time they have. Considering the need for employees to fill their energy and decrease stress (Gutnick, 2007), there is a need for a shared dining room that can make it easier for these employees. Moreover, the effects of physical environment of office building on the employee productivity and healthy workplace environment have been largely analyzed in previous studies (Kamarulzaman et al., 2011; Roelofsen, 2002; Lowe, 2020; Budie et al., 2019; Shafaghat et al., 2019; Otterbring et al., 2018). In this regard, workplace flexibility is assumed to have positive effect on work performance (Becker, 2002).

The potential for office buildings to have a canteen or an adequate place to eat is very large. The office canteen is not only used as a place to eat, but is also modified in such a way that there are other facilities in it which are expected to support the activities of its users. The study aims to analyze the standards of cafes and rental offices, types of service systems, various attributes and their meanings by specifically observing workplace cafes. The study observed two cafés in Semarang by reviewing the management applied to the cafe and what effect it has on the layout and their users. To support the analysis, observations were made on the behavioral mapping of the two cafes. This study focused on the concept of a shared dining room or known as mensa dining table. Mensa dining table has also been investigated in previous architectural literature. Byrne (2016) showed that dining table affects eating practices. Moreover, by examining the design and branding of a restaurant, Ertzberger (2009) showed the effect of café design on creating restaurant Environment. Therefore, an analysis is needed to determine the needs of the dining area in the office building. The formulation of the problems contained in the research include:

1. What types of activities are there in the two cafes?
2. How is the circulation in the two cafes?
3. What is the management of the two cafes?
4. What type of service is most suitable and appropriate to be applied to shared dining room or called mensa in the office building?

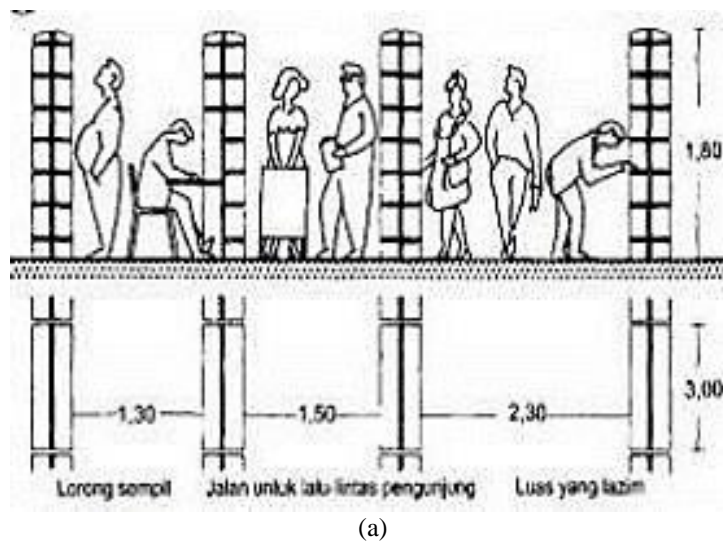
II. Literature Review

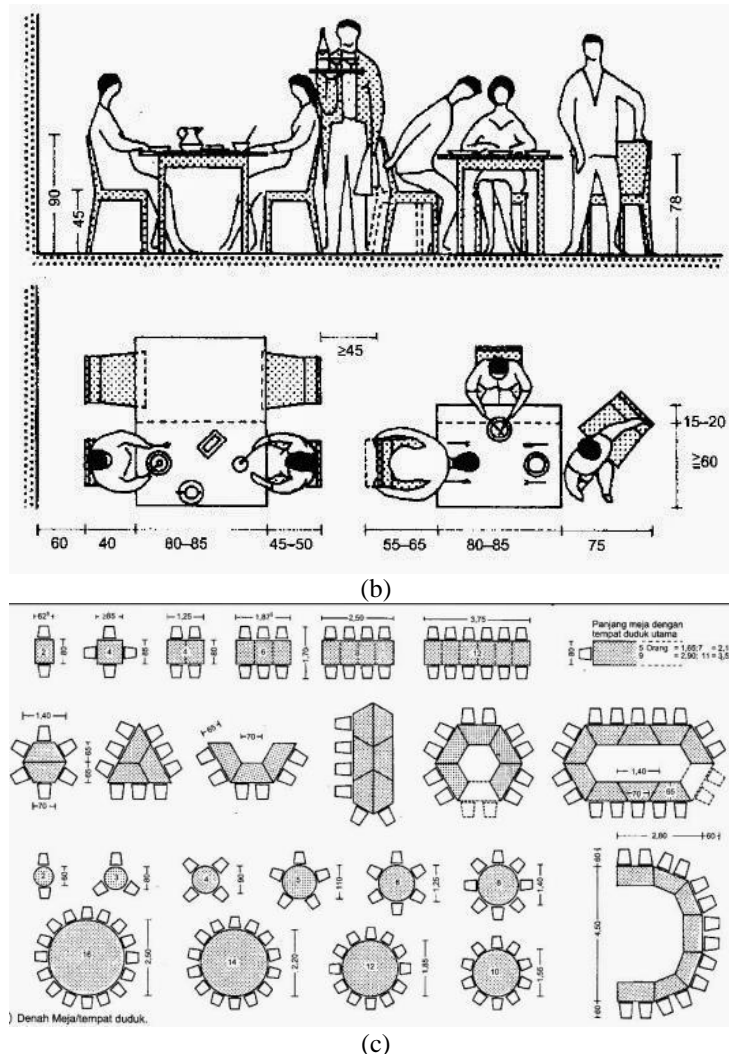
According to the Medlik (2002), a cafe is a restaurant with a limited menu and is another term for coffee which is commonly used to refer to the term coffee shop. Meanwhile, according to Budiningsih (2009), a cafe or cape is a small restaurant located outside the hotel and has very limited food choices. It can be concluded that the cafe is a place that provides coffee drinks and other soft drinks which are also accompanied by snacks such as cakes and cakes. The atmosphere of this place tends to be relaxed so it is often used to just wait and meet with colleagues (Figure 1; Figure 2).



Source: Neufert, 1996.

Figure 1. (a) Standard Size One Person Standing, (b) Standard Size of Two People Standing, (c) Standard Size Three People Standing, (d) Standard Size of Four People Standing, (e) Standard Size of Two People Walking, (f) Standard Size of Sitting Position





Source: Neufert, 1996.

Figure 2. (a) Circulation Size Standards, (b) Standard Size of Dining Table Position, (c) Standard Dining Table Size

Moreover, according to Arnawa (1999), there are five types of service systems according to the type of restaurant, including Plate Service/American Service, Platter Service/Russian Service, Gueridon Service/French Service, Buffet Service and English Service. Firstly, the Plate Service/American Service system is most often found in non-formal restaurants such as coffee shops, fast foods, canteens, and so on. The way of presentation is that if the food from the kitchen is ready and already served on a plate, then the plate is immediately delivered to the guest. Secondly, the way of presenting the Platter Service/Russian Service system is that if the dish from the kitchen is ready, it will be arranged and placed on a plate, after which the waiter serves it to the guest's plate. Thirdly, the way of service from Gueridon Service/French Service is using hot plates and tools and the food is prepared on a gueridon directly in front of guests. Therefore, it needs special waiters called Chef de Rang and Commis de Rang. This service system includes luxury services. Fourthly, Buffet Service allows guests to choose their own dishes that have been served on the buffet table to be eaten and brought to the dining table. This service system is effective because the dish is ready without waiting. Lastly, English Service is carried out by serving food that is placed close to the host, then the host will mix and serve it to table guests. This service system is rarely used because it is considered a hassle for the host.

In term of rental office, Marlina (2008) stated that a rental office is a building that accommodates business transactions and services in which there are spaces with the same function, namely the office function with the status of the user as a tenant. Based on the form of business of the tenant, the office can be grouped into two, namely single use building and mixed-use building. Single use building is an office that is only rented by one type of business and there is a relationship between them. Meanwhile, a mixed-use building is an office in which various types of businesses can rent and there is no connection between them. What must be considered in this rental system is the space rental system, the rental period, and the area of the unit being leased.

Furthermore, in term of attribute, according to Weisman (1981), there are 12 kinds of attributes that arise from the interaction between humans and the physical building, namely comfortability, visibility, accessibility, privacy, sensory stimulation, control, sociality, adaptability, activities, crowd, legibility and meaning. Comfortability is the state of the surrounding environment that is suitable for the five senses and their activities. Visibility is the ability to be able to see a maximum of 60 meters without being physically obstructed by visuals to reach the intended object. Accessibility refers to the ease of moving and through to reach the intended object of circulation. Privacy is a person's desire not to be disturbed and disturbed individual existence. Sensory stimulation refers to the quality and intensity of stimulation as an experience felt by the senses. Control is the condition of a setting to create certain territories and boundaries.

Moreover, sociality is the ability to perform social interactions in an environment (Bookman, 2014). Adaptability refers to the ability of the environment to be able to accommodate different behavior than before. Activity is a feeling of the intensity of behavior that continues to occur in an environment. Crowdedness is a feeling of density in an environment. Legibility is the ease for someone to understand the elements in finding a path or direction. Lastly, meaning is the ability of the setting to be able to display individual or cultural meaning for society.

III. Methodology

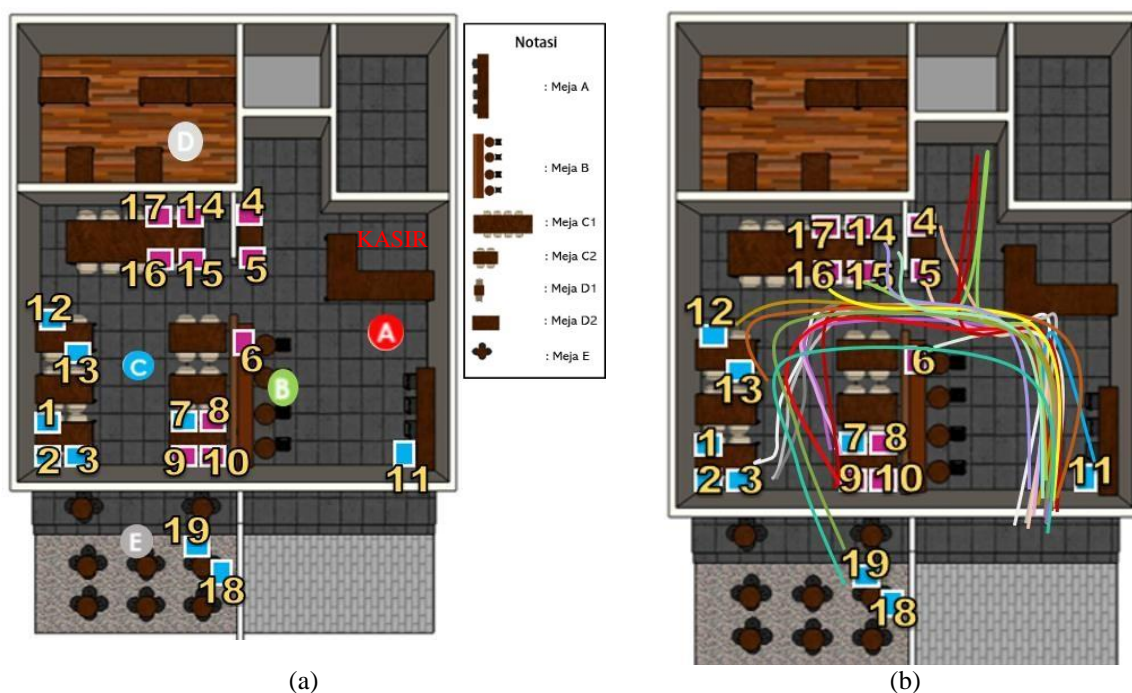
The study begins by studying the notion of behavioral mapping which consists of two types, namely person center mapping and place center mapping. The research was conducted in September 2020 and March 2021 in two workplace cafés in Semarang, Indonesia. The observation was conducted in two cafes with the object of research to analyze user behavior and how to accommodate activities in the space. The technique of determining the sample is by accidental sampling at the two cafés.

IV. Results and Discussion

4.1 The first cafe

The first café is located at Banjarsari, Tembalang. This cafe is visited by many students because it is located close to a large campus in Semarang. The type of service used in this cafe is Plate Service/American Service. That is a type of service by serving dishes that have been prepared from the kitchen for visitors. The way to order at this café is that visitors order drinks and food on behalf of the visitor at the cashier and pay for it immediately. Visitors are advised to wait at the selected table after which the café waiter will call the customer when the order has been completed.

There are 26 dining tables, 67 chairs, 1 barista table and 3 air conditioners in the café room measuring 12 x 19 meters. The results of behavioral observations on this café users were carried out on Thursday, September 24, 2020 at 16.30 – 18.30 WIB. Due to the current pandemic conditions, in this observation there were only 19 respondents consisting of 9 men and 10 women. Activities carried out by café visitors include eating, drinking, chatting, doing tasks, playing gadgets and discussion. Figure 3 presented the results of observations on the person center mapping of the 1st café with the selection of the type of circulation chosen by visitors.





(c)

Figure 3. (a) Plan of 1st café, (b) and (c) Observations of person center mapping

With such a layout and management, apparently there is a queue when placing an order at the barista table (Table 1). Many visitors who occupy Area C can be seen from the large percentage, which is 68% in Table 1, because the area only has a dining table and the table used is wider than the others.

Table 1. Place Center Mapping of 1st café

Day: Thursday, September 24, 2020; Seating Capacity: 70 People					
Condition 1/3 = 23 People (100%)		Condition 1/2 = 35 People (100%)		Condition 2/3 = 46 People (100%)	
Property	Number of People (%)	Property	Number of People (%)	Property	Number of People (%)
Area A	5%	Area A	0%	Area A	0%
Area B	5%	Area B	0%	Area B	0%
Area C	68%	Area C	0%	Area C	0%
Area D	10%	Area D	0%	Area D	0%
Area E	10%	Area E	0%	Area E	0%
Total	88%	Total	0%	Total	0%

To analyze accessibility, the observations showed that visitors can easily move and go to a table at 1st café shown by the pattern or circulation pattern in its areas that is easy to understand. The general circulation pattern of the cafe space as analyzed by performance criteria showed that the circulation flow in the cafe is clear and does not confuse the users (Figure 4). The results are in line with Heerwagen et al. (1995) demonstrated that enhanced workplace physical environment can contribute to keeping stress.

In term of visibility, the analysis showed that 1st café has a cashier located facing the entrance with the signage “order here”. The cashier who is also the place to order is located in front of the entrance and has a distance of 4.5 meters with conditions that are not obstructed by any object. By comparing to performance criteria, the results showed that the point that is a definite destination of cashier has high visibility for visitors.

In term of comfortability, the analysis obtained from the observation showed that furniture of table had backrests and foam on the chairs. For air conditioning, there are 3 air conditioners in the indoor section so that the air is cool evenly. As to present performance criteria, the air in this cafe is good and the chairs provided are ergonomic. The results are in line with Olabode & Adesanya (2017) and Karuppiah et al. (2020) presented the results that ergonomics design can improve employee performance.



Figure 4. (a) Circulation between areas at the 1st café, (b) Entrance, (c) Signage

4.2 The Second Café

The second object is a café functioning as a place to eat which is located in Candi, Semarang. The shop provides a variety of home-cooked meals that are ready to be served. Many workers around the stall choose this place for their lunch destination. The service system of this shop is buffet service. Visitors choose the food that is served in a glass window and the waiter will serve according to the queue and after that visitors look for available seats. Drinks and additional menus will be followed by the waiter to the visitor's table. When finished, new visitors pay at the cashier before leaving the shop. There are 6 tables (3 types), 38 plastic chairs, 4 long wooden chairs, 1 cashier table & chair, 2 fans, 2 beverage refrigerators, and 2 glass display cases in the 9.8 x 15-meter stall.

The behavioral observation data on 2nd café users is carried out on March 17, 2021. Even though it's in a pandemic condition, this shop still has a lot of visitors at lunch time. In total there were 75 visitors who took turns visiting the shop. Activities carried out by shop visitors include eating, drinking, chatting and playing gadgets. Figure 5 presented the results of observations on the person center mapping of 2nd café. Figure 5 shows that the layout of the stall actually causes congestion on the right side of the entrance and storefront area.

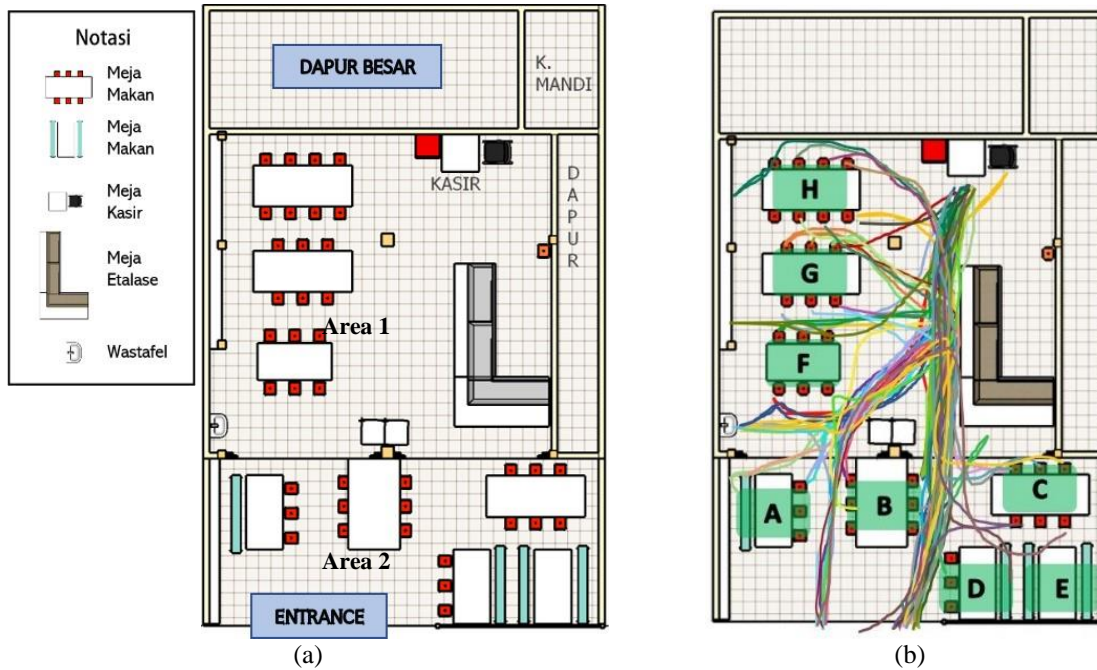


Figure 5. (a) Food Stall Plans of 2nd café, (b) Observations of Person Center Mapping

Table 2. Place Center Mapping of 2nd Café

Day: Wednesday, March 17, 2021; Seating Capacity: 48 People					
Condition 1/3 = 16 People (100%)		Condition 1/2 = 24 People (100%)		Condition 2/3 = 32 People (100%)	
Property	Number of People (%)	Property	Number of People (%)	Property	Number of People (%)
Area 1	56%	Area 1	60%	Area 1	0%
Area 2	44%	Area 2	40%	Area 2	0%
Total	100%	Total	100%	Total	0%

Table 2 showed that the area most occupied by visitors is Area 1, which is indoor. This is supported by observations on the following attributes. In the aspect of comfortability, the analysis showed that in term of aeration, there are 2 fans in Area 2 (indoor), 2.4 meters above the floor, reaching 2-3 meters. In term of furniture, the long wooden chair is not ergonomic. The performance criteria revealed that the air in this shop is good but the wooden chairs used are not good (Figure 6).

In term of accessibility, the analysis showed that Tables A, B, and D are located at the entrance, the chairs from the table are pulled an average of 25 cm so that the remaining space is only 70 cm. The location of the cashier is difficult to reach because it is at the back (7.5 meters). The performance criteria showed that the accessibility of the shop is not good.

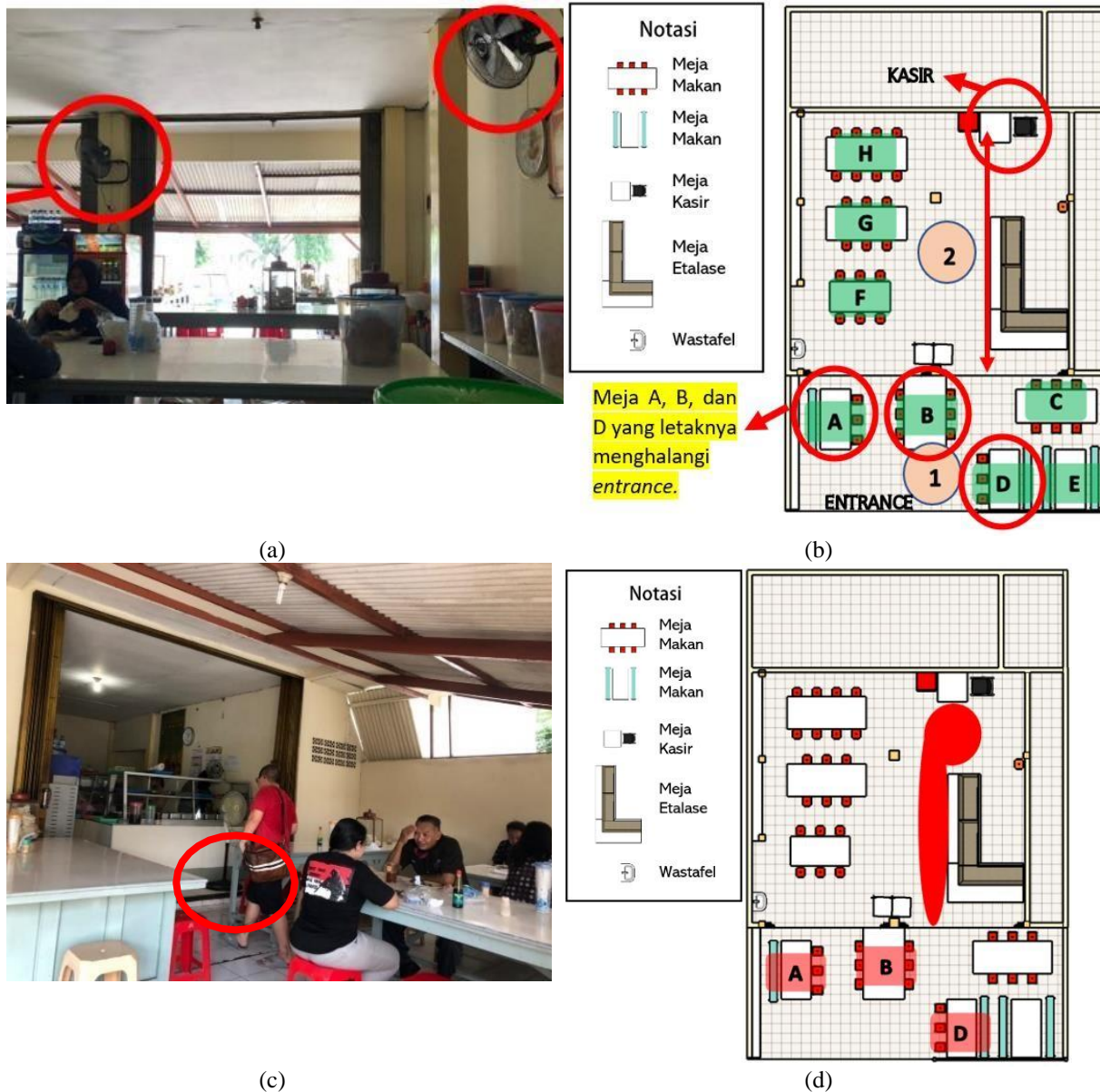


Figure 6. (a) Fan to support air conditioning, (b) Tables A, B, D, and cashier, (c) Visualization when the chair at the table D is used, (d) Stifling areas

The analysis showed that crowding is felt due to the level of density that occurs due to the volume of visitors who fill the area and tables marked in red. The performance criteria showed that there were crowds at the stall due to improper arrangement and management.

V. Design Recommendations

From the two cases, redesigning should be considered. The concept of design recommendations is about service management and spatial circulation area. Robson (1999) stated that redesigning the physical furniture and layout, including table placement, can psychologically stimulate visitor perception regarding high-volume and active restaurants. Countryman & Jang (2006) also found that atmospheric elements of physical environment can improve customer impression. In this regard, in term of service management, to make it easier for visitors, the recommended type of service used for two cafés is plate service with waiters serving fully from ordering to payment where visitors just choose a place. This is to avoid accumulation or queues in the shared dining room and also reduce the mobility of visitors.

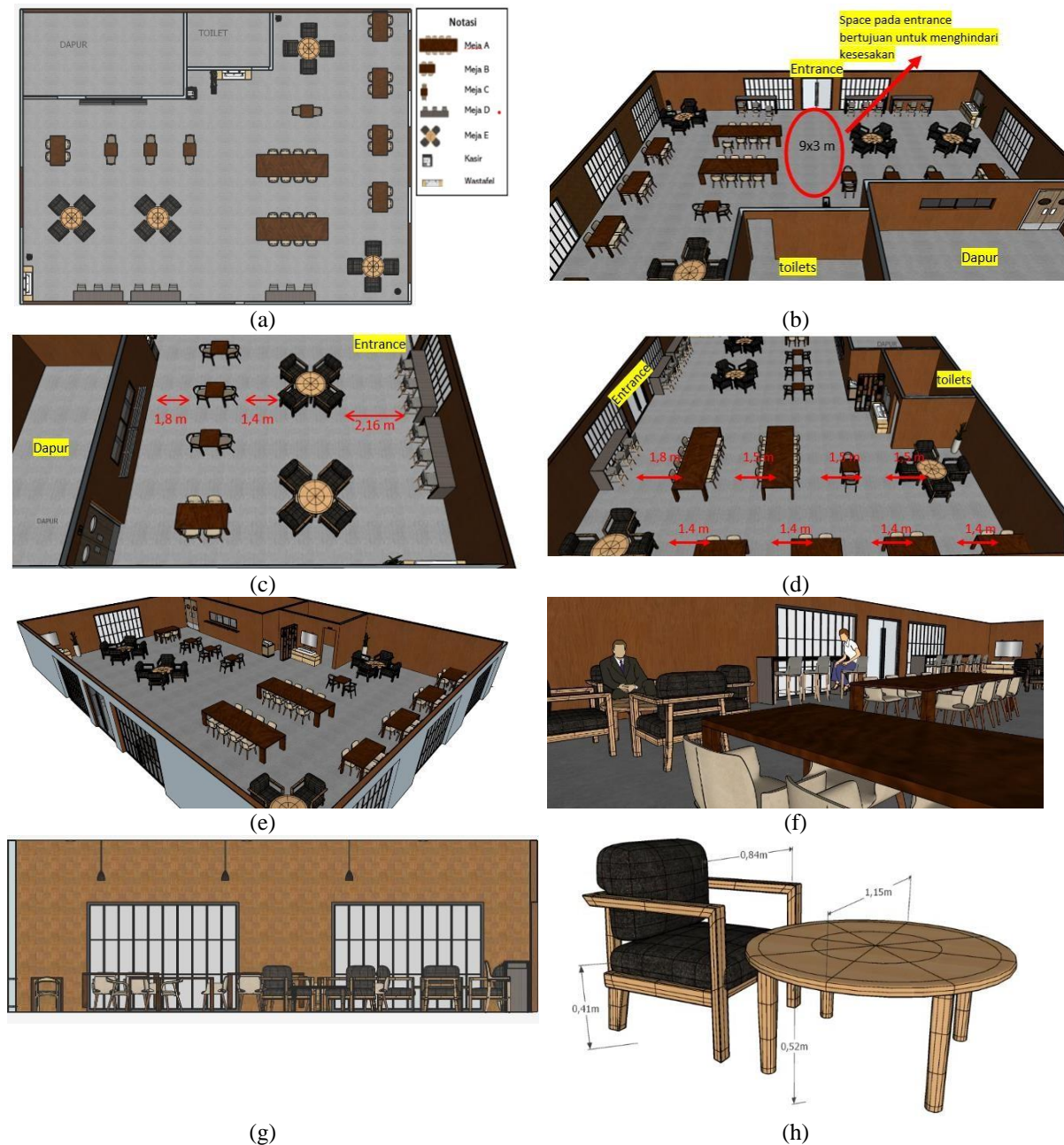


Figure 7. (a) Mensa Room Design Recommendations Plan, (b) Picture of Mensa Room Recommendation Setting, (c) Image of Setting Recommendation for Mensa Room with Left Side Perspective, (d) Image of the recommended settings for the Mensa Room from the Right-Side Perspective, (e) Perspective Drawings of Mensa Room Recommendations, (f) Picture of Mensa Room Situation, (g) Left Side View, (h) Table and Chair Size E

Furthermore, in term of spatial circulation area, by specifically referring to 2nd café case, where the accessibility of the stall is not good making the arrangement of the furniture and the space for circulation are inadequately placed. For that, the distance between the tables is enlarged. Figure 7 showed redesign recommendation of shared dining room in office building. Figure 7 (b) and (c) showed the size of the space and the large distance between tables so that users feel comfortable in terms of privacy between tables so that employees can chat without feeling disturbed by other tables. Table E in Figure 7 (h) is provided for visitors or employees who want a more relaxed atmosphere, just to chat.

VI. Conclusion

The results showed that that visitors tend to prefer seating where there is only a dining area. This is because facilities such as chairs and tables are more ergonomic than others. The outdoor area is usually occupied by visitors who smoke and want to relax and discuss outdoors. Moreover, the results underscore that improper layout arrangement can cause congestion/congestion. Thus, providing signage is likely expected to increase visitor visibility. The layout of the furniture and space in the mensa dining table as the office building is easy to pass and use of circulation without being obstructed by physical objects.

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