

# Density and Crowd in Palasari Bandung Book Market

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## Abstract

BBC Bookstore at Palasari Market is a shop frequently visited by buyers, because in addition to implement a self-service system, it also has a quite complete book collection. However, the storage of books there exceeds the store's capacity and not well organized, which caused the density of the store. Therefore, it is necessary to examine how the density and crowd affect space users in the activities that take place inside the store.

The method of research conducted is using a qualitative approach, which related to the condition of the bookstore. This study observes to which extent the density and crowd occurs in Bandung Book Store in Palasari Book Market, and observes its impact on space users. The results of field studies show that dense objects placement in a store result in congestion and density for the users who use the place as well.

Result of this study shows that the relationship between density and crowd affects human behavior in space. The density caused by the number of people and displayed books in the store resulted in distress and discomfort of the space users.

**Keywords:** density, crowd, bookstore

## 1. Introduction

Density and Crowd are things that have the potential to cause problems in a space. The problem arises due to the limited space with a quite large number of users. Density does not only occur due to the increasing number of people in the area, but also by the number of items there. Increasing the amount of space users, both humans and other objects, have resulted in distress condition for humans in the space. Crowd is another form of human perception of the environment, which also related to density. In other words, 'density' is related to the scale comparison of people and goods within space, which is very objective and measurable. Whereas, 'crowd' is subjective, it influenced by someone's experience of the environment. Based on existing theories and research, crowd and overcrowd that occurs can cause users to experience stress and behave aggressively.

Palasari book market is a book market located in the center of Bandung city, which has approximately 400 units of stall, with an average size of stall is around three meters square. Almost all of the space in each of the regular stalls there is used as a book storage area, while the remaining space, which around 20 percent is used by stall owners to conduct trading activities and circulation.

In addition to the small stalls or kiosks, there are also bookstores that wider than the elongated stalls. One of the big shops and had quite complete book collections is BBC (Bandung Book Center) which located at the back of Palasari Market. However, at a glance, we can see that the density of the book storage in this store is not too far different from in the small kiosks, which means that almost

80 percent of the store area is used to store books, so that the atmosphere of the room looks quite dense.

It is interesting to study, especially to see to which extent the density that occurs at the BBC Palasari store and its impact on the crowds of visitors, both physically and psychologically perceptions of space users. The author hopes that the results of this study can be used as a reference in making an interior design of bookstores and other public spaces, especially taking considerations in making a good display and circulation system according to existing design standards.

According to Taylor (in Gifford, 1982), the surrounding environment can be an important source in influencing attitudes, behavior and internal state of individuals in a residence. Houses and residential environments that have good and comfortable situations and conditions such as having enough space for personal activities will provide psychological satisfaction to the individuals living there. Meanwhile, according to Valins and Baum's research (in Heimstra and MacFarling, 1978) there is a close relationship between density and social interaction.

The followings are negative impact examples of environmental densities:

- a. Stress: high density can foster negative feelings, anxiety, stress (Jain, 1987) and changes in mood (Holahan, 1982).
- b. Withdrawing: high density causes individuals to tend to withdraw and to become less willing to interact with their social environment (Heimstra and MacFarling, 1978; Holahan, 1982; Gifford, 1987).
- c. Helpful behavior (pro-social behavior): high density also reduces an individual's desire to help or provide assistance to others in need, especially strangers (Holahan, 1982; Fisher et al., 1984).

d. The ability to do tasks: dense situations reduce the ability of individuals to do their tasks at a certain time (Holahan, 1982).

e. Aggression behavior: a dense situation experienced by individuals can foster frustration and anger, and eventually formed aggression behavior (Heimstra and MacFarling, 1987; Holahan).

According to Altman (1975) distress is an interpersonal process at a level of human interaction with one another in a pair or small group. High density can cause distress in individuals (Heimstra and McFarling, 1978; Holahan, 1982). Another opinions coming from Rapoport (in Stokols and Altman, 1987) which revealed that distress is a subjective evaluation where the amount of space is deemed as insufficient. Limitation of distress involves one's perception of the state of space when he/ she associated with the presence of a number of other people, where the available space felt to be limited or the number of people felt to be too much. Crowding is a perception, so each individual could give a different meaning. Crowd environment causes a person's activities to be disrupted, one of which is because it allows the emergence of unwanted interpersonal interactions. This condition can resulted on discomfort, stress, anxiety, bad mood, increased aggressiveness and others. Thus, it can be concluded that the density that occurs can affect human distress level which then will affect human behavior in a space.

## 2. Methods

This research uses descriptive research method with descriptive analysis. Researchers use the desk research method as a first step in data collection, such as searching for information through books, the internet and other publications. The next step is carry out descriptive analysis by collecting data through observation and interviews on the object of the case study, the data collected then will be processed and analysed. Data collection through observation is carried out to obtain primary data, while the written source serves as a secondary data source for basic analysis.

## 3. Result and Discussion

The Bandung Palasari Book Market is a large book trade center, which reaches the peak of spending during the new school year. One of this market's advantages is the complete number of book collections, so that it can still survive among many modern bookstores.

There are 2 types of sales service systems in Palasari Book Market, namely:

1. Full service: buyers are served directly by the seller.
  - In the small kiosks with the same settings, buyers and sellers are in a face-to-face position.
  - Price of the book is still negotiable.
2. Self-service: buyers find their own desired book.
  - The store space is wider
  - Books sold are the new ones
  - Fix price.

Bandung Book Center (BBC) is one of bookstore with self-service system, which located at the back of the market.



Figure 1. BBC Palasari main entrance

Source: Personal Documentation

The BBC Palasari Bookstore is a store often visited by buyers, because in addition to the self-service (looking for one's desired books by oneself), also because the book collection provided is more complete than in the other stores. This bookstore has two floors, where both of which are used as book selling areas. At the Main Entrance there is a door with the width of approximately 180 cm, which actually enough for circulation of two people. In front of the entrance, there is a luggage storage area for visitors. Books are stored along the circulation area of visitors, starting from the front to the back area, all filled with books, so that there are no space left to do other activities. The books are arranged in various positions, both horizontally and vertically stacked. For the vertical arrangements, people are forced to turn their heads around 90 degrees, which makes it difficult for people to read the book's title and make them take longer time to find their desired books (figure 3), and it will also inhibit another person who wants to look for a book in the same place.



Figure 2. Composition of book storage and user conditions when searching for books on the BBC Ground Floor Area Source: Personal Documentation

The density of books that stored beyond the store's capacity results in crowds of visitors. Books of the same type are displayed in large quantities, making it more like a storage area than a display. Visitors must also search for a book in a narrow space with other people so that the search effort becomes less effective. Circulation flow is also not in accordance with the rules of ergonomics, because one person can only pass the space at a time, and that is in a minimal state.



Figure 3. Book storage in BBC 2<sup>nd</sup> Floor  
Source: Personal Documentation



Source: Personal Documentation

Similar storage systems are not only on the first and second floors, but also in the stairwell area. People will pile up in the area whenever someone is looking for a book that is along the stairs (figure 4). Although visitors can find their own books, in this area the shop assistant is required to retrieve books that are not affordable (figure 5).



Figure 5. Shop assistant trying to retrieve a book from the upper shelf

Source: Personal Documentation

## Discussion

In addition to the lack of space supporting facilities, such as the fans provided are not proportional with the amount of space, the number of objects and the number of visitors, makes the room feels hot and hard to breathe in. Moreover, the noise and body odor in the room cannot be controlled,

causing visitors to feel psychological discomfort and reduced their concentration.

As has been discussed above, the density that occurs in Bandung Book Center stores is caused by too many numbers of books on the display. For the same book title, some of it in the display can actually represent it. The density occurs because the store ignores the design rules, which should consider the comfort of the space user. The circulation area should consider the minimum size of people to cross the area (at least 60 cm for 1 person to cross, or ideally 120 cm for 2 people to pass), so that the effectiveness of activities can be achieved.

As results of the density that occurs, people feel tightness and become uncomfortable. Phenomenon that occurs are visitors experiencing concentration problems and a sense of tightness, so they do not stay in the area for long and it makes their goal there is difficult to achieve.

This is in line with the theory presented earlier, one of it is the opinion of Rapoport, which states that a crowded environment causes a person's activities to be disrupted, because it allows the emergence of unwanted interpersonal interactions. This can have an impact on discomfort, stress, anxiety, bad mood, increased aggressiveness, and others.

## 4. Conclusion

Based on the research conducted it was concluded that an environment condition is able to influence the attitudes, behaviors and internal states of individuals in a place. Density not only occurs due to the large number of people who are in it but also the placement of objects in an area. In the case of BBC Store in Palasari Bandung, overcrowding occurred due to the excessive number of books on display, as well as the wide variety of different book cover displays that added the impression of being psychologically denser.

In addition, the circulation area is not in accordance with the comfort standard, makes the visitors to coincide. The number of users of the room is quite a lot, increasing the density level with the noise emerged and other visitor's body odor. As results from above conditions are the visitor feels inconvenience and difficult to find the required collection of books, and discomfort to stay in the store for a long time.

Thus, it can be concluded that due to overcrowd and distress physically and psychologically, resulting in interference physically, socially and psychologically. This is in line with what was expressed by Heimstra and Mc. Farling above.

In this study, the writer had difficulty in gathering references related to research in the same field in an interior case. In addition, research on density and crowding in the interior of public spaces is still rarely conducted, so this study is expected to be a preliminary research that can be continued to further research in more detail and depth. Future studies are expected to be more valid and can involve measurable quantitative testing methods.

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