The Correlation between Enclosure and Customer's Response

FAYADIVA¹ and A GAMAL²

¹Postgraduate Student, Department of Architecture, Faculty of Engineering, Universitas Indonesia, Depok 16425, Indonesia
²Corresponding Author, Assistant Professor, Department of Architecture, Faculty of Engineering, Universitas Indonesia, Depok 16425, Indonesia

e-mail: gamal@eng.ui.ac.id

Abstract. There is a change in store design that is widely used by brands to sell their products. Brands that use temporary store is no longer integrating any boundaries to separate the store from the environment around them. The existence of boundaries relates to the spatial quality of the store, which ultimately has a relation to the response of customers. The new trend of retail shows that enclosure is no longer needed to accommodate shopping experience. Unfortunately, there is still limited literature that studies the enclosure of the store as a spatial quality in a store environment. The purpose of this research is to examine the relationship between the enclosure of a store environment and the customer's shopping experience. This paper also extends the research related to the store's spatial quality and its relation to the customers. A literature review was conducted to further investigate the relationship between enclosure as the store's spatial quality, product engagement, and customer responses. This study features three store simulation videos with three different types of enclosure (4 walls, 2 walls, 0 wall) and two sets of questionnaires to study the customer's behavior. We interviewed 163 respondents from the age range of 19-35 in this study. The results indicate that the store with no enclosure encourages the customer to stay longer compared to the store with an enclosure. These findings can later be used as consideration for retail designers to develop their stores.

1. Introduction
There is a change in store design that is currently popular among big brands to sell their products in the current development of retail in Indonesia. Temporary store, a new trend that started in 2013, is no longer integrating any boundaries to separate the store from the environment around them [1]. The existence of boundaries in the store design is related to its spatial quality. This quality likewise is related to the response of customers. The new trend of the temporary store shows that enclosure is no longer essential to improve the shopping experience. The store focuses more on direct engagement between the buyers and the products [2]. The same consideration for involving buyers with products to enhance the shopping experience has also applied to permanent stores [3][4][5][6]. Nevertheless, the temporary stores are no less competitive compared to the permanent stores in shopping centers.

Previous studies related to spatial quality discuss more on the arrangement of furniture and products in the store. An in-depth study on the consideration regarding the visitor's responses is still limited. There is still very little research that addresses the enclosure of the store as a spatial quality in a store environment. Therefore, the primary purpose of this paper is to conduct more in-depth research compared to the previous studies especially about the enclosure as the store's spatial quality and customer behavior by analyzing the relationship between the built physical environment, such as the walls in-store, and customer's responses in shopping experience.
A literature review is conducted to further investigate the relationship between enclosure as the store's spatial quality, product engagement, and customer responses. There are two aspects taken into considerations to improve the quality of shopping experience, namely (1) things that can be designed by the retailer and (2) things that cannot be planned by the designers [7]. Things that cannot be controlled by designers consist of subjectivity, time context, consumer's motivations are [8][7]. On the other hand, things that can be planned according to the retailer's requirements are the spatial quality of the store and product engagement [9][10]. The improvement of the shopping experience will have a positive impact on visitors and will create a bigger chance for them to purchase the products available in the store [11][12][13]

![Figure 1. Literature Diagram](image)

Figure 1 summarized the literature review that we did. Shopping experience can be improved by enhancing the spatial quality of the store and product engagement to increase positive responses from the customers. The studies about the spatial quality of a store in the architectural context are still limited. The existing studies related to the store's spatial quality focus more on the layout of the store with its primary function to promote the products for the customers. The physical condition of a room needs to be considered while designing a store since it affects the quality of the space [14]. The layout of furniture, lighting, openings, and decoration elements in a room gives a different perception of spatial quality for people [15]. The spatial quality of a store is essential to create an atmosphere that enhance the customer's shopping experience. Existing research related to the influence of spatial quality of stores on customers' responses discusses a lot about store's layout regarding the composition of the products placement [14], shelves and color arrangement [8], space and human crowdings [13][15] and the flow of visitor movements [16]. There is still limited research that discusses the enclosure as a store’s spatial quality that has a relation to the customer's shopping experience.

The enclosure is a spatial quality affected by three factors, which are lighting, horizontal area, and boundary [17]. A brighter place creates an impression of a bigger space for the people and it leads make people feel less enclosed [17]. The use of the horizontal area and boundary makes space seem more enclosed or spacious. The room with wider horizontal areas will have fewer boundaries. The bigger the space for circulation, the more spacious the room feel, thus people feel less enclosed in it [17]. Studies related to the enclosure in a store environment discuss the effect of lightings attributes [18][19] the area of the store's aisle affected by the shelves [20], and enclosure as protection from the weather and to separate the area within the store from the outside environment [14][21][22].

Unfortunately, there is a limited amount of study about the enclosure as the boundary that surrounded the store space. For this reason, this paper will further discuss how enclosure is related to the customer's responses. Space that has no boundary have more significant size of the horizontal area. People have the ability to move freely in less enclosed space [17], therefore the customers will stay longer in the store to explore every part of it. Staying in the store is an approaching behavior from a
customer. Approaching behavior in shopping has a positive impact on the store. The longer someone will stay, the bigger the chance for them to buy the products from the store [11][12]. Based on the literature review, we conduct an experiment to further investigate the relationship between the enclosure in the store to the customer's behaviors.

2. Data and Methods

Previous studies have been using simulation to analyze the spatial quality of the store such as the width of the aisle [20], the relation of shopping motivation and the store's color design (Rompay, et al., 2012), the store's lighting [18][19], and the spaciousness and the enclosure in a room [17]. This study experimented with 3D Model simulations of stores and two sets of questionnaires as the research instrument. Variables obtained from the literature review were applied to the research instrument. Such considerations were used to control the sample of respondents and the design of the store. The spatial quality of the enclosure of the boundary was the independent variable that we examined. The spatial quality of the layout, involvement with the product, and the sample of respondents to follow the experiment were the control variable. The responses from the visitors to the experiment were the dependent variable in this study.

The three stores sold consumer technology products and had the same layout. We chose the products because it didn’t require personal's measurements for each individual as a consideration to buy the products. The products had a wide range of variety. Such diversity provides quite a lot of choices for respondents to choose from. We also made sure the three stores had the same lightings, area, and location. General lighting was used to make the store bright so all the products were visible to the respondents. The only difference was the boundary element, which was the wall that surrounded the store. Figure 2 showed the store's arrangement. The first store had 4-sided walls, the second store had two-sided walls, and the third store had no walls. In that case, the first store was the most enclosed while the third store was the least enclosed.

The respondents did the simulation and then fill out the questionnaires. The first set of the questionnaire was essential to get information about the participant's spending level according to their incomes, savings, and purchase histories. The other part was presented for the participants to list all the products they saw or bought from the simulation. A set of pictures of the products was shown for the respondents to list everything that they saw or chose to buy. The respondents for this study were chosen from the age range of 18 years old up to 35 years old. The respondents between the age of 18-22 were students. Respondents who were older than 23 years had graduated from college and were working. Most of the older respondents already had their own salaries. This experiment also involved both genders.

The respondents participated in the experiment by doing a shopping simulation in the assigned store. Each person explored one type of store. Before it started, the respondents were given a scenario where they had Rp.30,000,000,- on their wallet. They could choose to spend it to buy the products in

![Figure 2 The Layout of The Three Stores Simulation](image-url)
the store or to keep the money. There was no time limit and there was no specific task item for them to buy. The respondents had all the money and time they needed to shop at the store.

![Figure 3 The Preview of The Store Simulation](image)

The respondents could choose their path to navigate through the store as shown in figure 3. All the participants were able to pick the section of the store they wanted to see or explore. They were also able to leave the store at any time they wanted. We operated the simulation according to their decision. The respondents only needed to tell us which way to go (example: Left, Right, Straight, etc.). We recorded the simulations. We also measured the time they needed to explore the store using a stopwatch. After they finished navigating the store, the participants were allowed to decide what to purchase. They had a choice to buy any products from the store or to leave the store without buying anything. When the simulation was over, the respondent continued the experiment by filling out the questionnaires. We also measured the amount of time the participant spent to fill out the second part of the questionnaire. The time they spent to list the products on the questionnaire was considered to be the amount of time they spent to engage with the product. It simulated the customer's behavior in the store when they examined a product.

3. Results and Discussions

As many as 163 respondents participated in the 3 month-period experiments. The data collected shows that most people tend to spend more time walking around in the less enclosed store. The other factors that also have a relation with the number of time customers are spending in the store are gender, age, and their savings. The experiment shows that women spend more time to decide on the store compare to men. Older respondents also tend to spend more time exploring the stores than younger respondents.

Respondents in our sample spent less time in Store 1 compared to Store 2 and Store 3. People spent around 1-8.5 minutes walking around Store 1, 1-10.5 minutes in Store 2, and around 1-12 minutes in Store 3. We can see that there is an increase in the duration of time as the walls in the store that act as the boundary become less visible. It means the enclosure in the store is related to the customer's behavior in a shopping experience.

Our finding aligns with [17] work that people would be able to move freely in a larger horizontal area with less boundary. It affects them to stay longer in the store and to purchase the products [12][11]. Store 3 is designed with no walls surrounding it. This condition presented more opportunities for the respondents to explore the store. They could walk around the store from the inside and outside. The open plan also made the store look more spacious and encouraged them to
walk around. Meanwhile, respondents who experimented using Store 1 were only able to walk around from inside the store. The walls also made the store looks more compact and made it look smaller. This perception will make people feel enclosed and have less freedom to move, hence less time spent in the store. Most respondents who walked in Store 1 tended to explore only one side of the store. On the other hand, the respondents who walked in Store 2 and Store 3 tended to walk around the whole section of the store.

The other finding is that female respondents spend more time walking around the store compared to male respondents. We can see from Table 1 that the majority of females spent around 2.5 - 8 minutes while the majority of males spent 2.5 - 7 minutes. It happens because most females take more time to see all the products available in the store before making their final decision. This decision leads them to explore the whole part of the store. Male respondents usually go straight to their destination according to which product they want to buy. They don't walk around the whole store to see every available product. Nevertheless, although the majority of females spend a longer time to explore than males, some male respondents spent more time in the store compared to the others. These respondents spent much time because they have an interest in technology, hence the need to see every product available for them to buy. This finding indicates that the type of product sells in the store also has a relation to the customer's responses.

Age is also another factor to determine how long someone spends their time in the store. We can see from Table 1 that the older respondents spend a little longer time in the store compared to the younger respondents in each store. It happens because most of the older respondents are already working with their salary while the younger ones are mostly students. The older one tends to care more about their spending, hence they take a longer time to decide what to purchase. The younger respondents tend to not care much about the amount of money that they have and just buy the products they want. From this finding, we also realize some respondents don't necessarily consider the amount of money from the scenario as excess money to splurge. They still consider their factual economic condition to decide on purchasing the products.
Table 1. Data Collected from 163 Respondents Participated in the Experiments.

| Duration of Time Spent in Store (Minute) | 1.50 - 2.50 | 2.51 - 3.50 | 3.51 - 4.50 | 4.51 - 5.51 | 5.51 - 6.50 | 6.51 - 7.50 | 7.51 - 8.50 | 8.51 - 9.50 | 9.51 - 10.50 | 10.51 - 11.50 | 11.51 -12.50 |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Age 18 M 1 F 3 4 1 | 1            | 1           | 2           | 2           | 1           | 3           | 2           | 1           | 1           | 1           | 1           |
| Age 19 M 1 F 4 1 2 | 1            | 1           | 2           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           |
| Age 20 M 1 F 1 1 4 | 1            | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           |
| Age 21 M 2 F 1 2 3 | 2            | 1           | 2           | 1           | 2           | 1           | 2           | 1           | 1           | 2           | 1           |
| Age 22 M 2 F 1 2 1 | 1            | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           |
| Age 24 M 1 1 1 1 1 1 | 1            | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           |
| Age ≥25 M 2 F 1 1 2 2 2 | 1            | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 1           |
| TOTAL | 3            | 2           | 1           | 11          | 3           | 6           | 9           | 9           | 9           | 10          | 15          | 16          |

M = Male  F = Female
4. Conclusion
The results from this study indicate that a store with no enclosure encourages the customer to stay longer compared to the store with an enclosure. The more open and less enclosed the space is, the more times are spent by customers to walk around the store. Female customers also spend more time deciding what to purchase compared to male customers. Another result also shows that older customers need more time to consider which product to buy because they are stricter with their spending compared to younger customers. This will result in a longer time spent on older customers compared to the younger ones. These findings that we found can later be used as consideration for retail designers to develop their stores to encourage customers to spend more time in the store.

5. Acknowledgement
This article's publication is supported by Universitas Indonesia (UI) through its Research Grant #NKB-1755 /UN2.RST/HKP.05.00/2020

References
[1] Burgess, B., 2012. Pop-up Retailing: The Design, Implementation, and Five-Year Evolution of an Experiential Learning Projec. Journal of Marketing Educatio, pp. 284-296.
[2] Niehm, L. S., Fiore, A. M., Jeong, M. & Kim, H.-j., 2006. Pop-up Retail’s Acceptability as an Innovative Business Strategy and Enhancer of the Consumer Shopping Experience. Journal of Shopping Center Research, pp. 1-30.
[3] Kiran, V., Majumdar, M. & Kishore, K., 2012. Innovation in In-Store Promotions: Effects on Consumer Purchase Decision. European Journal of Business and Management, pp. 36-44.
[4] Singh, P., Katiyar, N. & Verma, G., 2014. Retail Shoppability: The Impact Of Store Atmospherics & Store Layout On Consumer Buying Patterns. INTERNATIONAL JOURNAL
[5] Lin, C. J. & Cheng, L.-Y., 2015. An integrated model of service experience design improvement. The Service Industries Journal, pp. 62-80.
[6] Phillips, M., Parsons, A. G., Wilkinson, H. J. & Ballantine, P. W., 2015. Competing for attention with in-store promotions. Journal of Retailing and Consumer Service, pp. 141-146.
[7] Petermans, A., Janssens, W. & Cleempoel, K. V., 2013. A Holistic Framework for Conceptualizing Customer Experiences in Retail Environments. International Journal of Design, pp. 1-18.
[8] Rompay, T. J. L. v., Tanja-Dijkstra, K., Verhoeven, J. W. M. & Es, A. F. v., 2012. On Store Design and Consumer Motivation: Spatial Control and Arousal in the Retail Context. Environment and Behavior, pp. 800-820.
[9] Same, S. & Larimo, J., 2012. Marketing Theory: Experience Marketing and Experiential Marketing. Lithuania, Vilnius Gediminas Technical University, pp. 480-487.
[10] Farias, S. A. d., Aguiar, E. C. & Melo, F. V. S., 2014. Store Atmospheric and Experiential Marketing: A Conceptual Framework and Research Propositions for An Extraordinary Customer Experience. International Business Research, pp. 87-99.
[11] Turlay, L. W. & Milliman, R. E., 2000. Atmospheric Effects on Shopping Behavior: A Review of the Experimental Evidence. Journal of Business Research, pp. 193-211.
[12] Yüksel, A., 2005. Tourist shopping habitat: Effects on emotions, shopping value and behaviours. Tourism Management, 28, pp. 58-69.
[13] Gogoi, B. J., 2017. Effect of Store Design on Perceived Crowding and Impulse Buying Behavior. International Review of Management and Marketing, pp. 180-186.
[14] Franz, G., Heyde, M. v. d. & Bülthoff, H. H., 2004. Predicting experiential qualities of architecture by its spatial properties. Vienna, s.n., pp. 1-9.
[15] Bokharai, S. & Nasar, J. L., 2016. Perceived Spaciousness and Preference in Sequential Experience. Human Factors, 58(7), pp. 1069-1081.
[16] Reimers, V. & Clulow, V., 2000. Shopping And Convenience: A Model For Retail Centres. ANZMAC 2000 Visionary Marketing for the 21st Century: Facing the Challenge, pp. 1058-1062.
[17] Lee, S. Y., Kim, J.-o. & Li, J.-G., 2011. Impacts of Store Crowding on Shopping Behavior and Store Image. *Journal of Asian Architecture and Building Engineering*, pp. 133-140.

[18] Groeppel-Klein, A. & Bartmann, B., 2007. Anti-Clockwise Or Clockwise?: the Impact of Store Layout on the Process of Orientation in a Discount Store. *E - European Advances in Consumer Research*, pp. 415-416.

[19] Stamps, A. E., 2010. Effects of Permeability on Perceived Enclosure and Spaciousness. *Environment and Behavior*, pp. 864-886.

[20] Manav, B. & Yener, C., 1999. Effects of Different Lighting Arrangements on Space Perception. *Architectural Science Review*, pp. 43-47.

[21] Custers, P., de Kort, Y., Ijsselsteijn, W. & de Kruiff, M., 2010. Lighting in Retail Environments: Atmosphere Perception in The Real World. *Lighting Reserarch & Technology*, pp. 331-343.

[22] Subklew, F., 2009. *Architecture and perceived control : role of architectural elements in consumers perception of retail environments*, s.l.:University of Twente.

[23] Reimers, V. & Clulow, V., 2009. Retail centres: it’s time to make them convenient. *International Journal of Retail & Distribution Management*, pp. 541-562.

[24] Clulow, V. & Reimers, V., 2009. How do consumers define retail centre convenience?. *Australasian Marketing Journal* 17, pp. 125-132.