"Inclusive Space, Enriching Culture"

Proceeding

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FOREWORD

It is with deep satisfaction that I write this Foreword to the Proceedings of the 3rd Biennale ICIAP 2016 (International Conference on Indonesian Architecture and Planning), held in Yogyakarta, Indonesia, 11-12 August 2016.

The high quality of the papers represent the thinking and experience of men and women experts in their particular fields. Their contributions helped to make the Conference as very important scientific event as it has been. The papers contributed the most recent scientific knowledge known in the field of Indonesian architecture and planning. I trust that this will be an impetus to stimulate further study and research in this area.

Thanks to the hard work in preparation and publicity on the part of the organizing committee, we have received over 100 submissions from Indonesia and other countries, such as Japan, India, Austria, and Australia. Manuscripts selected for presentation and publication in the ICIAP 2016 are subjected to a blind review by ICIAP Reviewer Board with the expertise in the field of architecture and planning. As readers may discover, the submissions cover a wide array of architecture and planning subjects, in conjunction with the theme of ICIAP 2016, “Inclusive Space, Enriching Culture”. I believe that thisProceedings will provide and stimulate further study and research in Indonesian architecture and planning.

Finally, I would like to take this opportunity to say my gratitude to all reviewers, as well as great numbers of staffs, faculties, and student volunteers at the Department of Architecture and Planning, Faculty of Engineering, Universitas Gadjah Mada – Indonesia, for the invaluable effort, continuous assistance and support.

Dr. Ir. Ahmad Sarwoyo, M.Eng
Head of Department Architecture and Planning, Faculty of Engineering,
Universitas Gadjah Mada
INTRODUCTION

This third International Conference on Indonesia Architecture and Planning (ICIAPI) is part of a biennale international program at the Department of Architecture and Planning, Faculty of Engineering, Universitas Gadjah Mada. With the focus on the field of architecture and planning subject/discourse in Indonesia, the conference is expected to be able to capture ideas, concepts, methods, or practices that evolve continually in this field.

We have had two Conferences before, the first ICIAPI in 2012 was bringing the theme of "Better Space Better Living", while the second ICIAPI in 2014 with theme "Space for The Next Generation". After the successful biennale holds in 2012 and 2014, ICIAPI 2016 comes with the main theme of "Inclusive Space, Enriching Culture". Space is believed to be inclusive for all living beings and therefore, in designing and creating space, we need a holistic and dialectic understanding on how culture and pluralism shapes space. ICIAPI 2016 aims at bringing together science, research, and practice of how to integrate inclusive idea and culture in Indonesian architecture and planning. It has a specific goal in finding the amalgamation of how to define, design, plan, and create an inclusive space for all, thus enriching the very diverse of Indonesian culture and heritage.

In this third ICIAPI, the conference offers main plenary session, panel discussions, and excursion to various architectural and heritage sites. We also had the opportunity to invite an keynote speakers coming from diverse cultural background that come to share their specialties and experience from broader multi-dimensional aspects of these issues. This year, we had received over 100 abstracts or full papers that have been submitted to the conference. After the screening process, there are 53 papers that have been reviewed and eligible to participate in this event. From various perspectives, these papers have been grouped in several contexts, such as design, urban, traditional and contemporary architecture, educational, socio-cultural, history-heritage, disaster resilient, and green environment contexts.

Finally on behalf of the organizing committee, I would like to thank everyone, especially all the faculties, staffs, students, as well as the study programs at the Department of Architecture and Planning Faculty of Engineering, Universitas Gadjah Mada for supporting our efforts in many ways and with positive participations. And also the members of the scientific and all organizing committee colleagues of the Conference for all the hard works and supports. We are also indebted to all of speakers who have dedicated time to share their invaluable knowledge in this forum and to the entire participants of ICIAPI. from the authors, the presenters, as well as the observers who have been during two days conference gave a positive academic atmosphere through related discussions.

Syam Rachma Marsiria, S.T., M.Eng., PhD
Chairperson Organizing Committee of ICIAPI 2016
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The Usage of Retail and Circulation Spaces in Pasar Beringharjo Yogyakarta

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Abstract

Pasar Beringharjo has been a prominently traditional market in Yogyakarta which not only provides daily needs, but also becomes a standard for economic growth in the city of Yogyakarta and a destination for tourism, whether for domestic and international visitors. Retail activities include social and cultural interaction which is related to the culture of Yogyakarta. This research aims to compare dimension of retail and circulation spaces related to the usage of spaces and standard dimension of retail spaces (Panero & Zelinski, 1979; Neufert, 1992; and De Chiara & Crobie, 2001). According to the research (Herliana, 2015), it has been said that 60 per cent on the usage of retail spaces and 76 per cent circulation spaces have still not conformed with the standard dimension of retail spaces and circulation spaces. The result derived from comparative analysis method between utility pattern of retail and circulation spaces based on six main variables which include dimension of activity zone for sellers, dimension of circulation zone, dimension of shelves, dimension of two-way-display wardrobes, dimension of counter tables, and dimension of hanging merchandises. There is a common behaviour for sellers to display their commodities in all spaces they have in their retail spaces, so that they don’t have a space for counter tables. Sellers also use circulation spaces to store the stocks of commodities or sitting in circulation space while offering the merchandises. Sometimes, sellers also sit in low-bright-benches while offering their stuffs. However, this phenomenon attracts visitors because it gives a traditional atmosphere.

Keywords: Retail spaces, circulation spaces, standard dimension of retail spaces and circulation spaces.

INTRODUCTION

The proliferation of a city closely related to the economic activities generated by traditional market. In a former Japanese cities, a traditional market as a center for economic activity was an important element which became a whole entity with an open space called ‘tan-bashi’ as a public space, a mosque as a religious center, and a palace as a center of power that has formed a traditional city. Traditional market has a significant role in the city growth as a center of trading for commodity or public service which can stimulate the development of a city. It becomes a place for the exchange of commodities and the exchange of information and knowledge.

The significance of Pasar Beringharjo as a research object is based on the thought that it is a unique cultural setting related to: [1] the history, culture, cosmology, and the structure of Yogyakarta; [2] the role as a center of trading; and [3] a unique character which signify shopping tourism activities around Maliboro Street and cultural tourism in The Palace of Mangkunegaran Hatiningrat.

Although there are shopping centers that use latest strategy of displays, such as Malioboro Mall, Galeria, Ambarukno Plaza, Hartono Mall, etc., but Pasar Beringharjo still attracts visitors to come. The crowds of visitors are often seen in Pasar Beringharjo, particularly in weekends and holidays. Everyday there is crowds of people in the circulation space, particularly at retail spaces which sell batik fabric. Visitors can not choose the stuffs that they want easily because the spaces for them to move are limited. In many cases, there are not enough spaces to display the commodities in retail spaces because the sellers do not have specific storage places, so that they keep steel of commodities also in the retail spaces and use part of circulation spaces to store their stocks of commodities. Consequently, visitors are in crowds and have difficulties to see and choose the stuffs.

Based on literature survey, there are four titles of recent research which discuss the trading activity in Pasar Beringharjo, but the research which focuses on the dimension usage of retail and circulation spaces has not yet found. Sari (2009) focused her research on the characteristic of trading activity and the strategy of marketing, which concluded the system of space arrangement based on commodities and the types of marketing strategy based on the characteristic of consumers. Before conducting this research, the
writer had done the research on the elements of urban space structure in Yogyakarta which supports the function of traditional market of Beringharjo (Octavian & Herliana, 2014:327-348). Afterwards, the writer does conduct a research on a cultural concept (Herliana, 2014b) and Javanese culture (Herliana, 2014c) which were reflected on the activity of trading in Pasar Beringharjo.

This research aims to observe the usage of retail and circulation spaces in Pasar Beringharjo Yogyakarta and compare the standard dimension of retail spaces design (Pareser & Zelenik, 1979; Neufert, 1992; and De Chiara & Crostive, 2001) with the actual dimensions used in the retail and circulation spaces in Pasar Beringharjo based on six main variables which include dimensions of activity zone for sellers, dimension of circulation zone, dimension of shelves, dimension of two-way displaywarehouses, dimension of counter tables, and dimension of hanging merchandises.

**METHOD**


Figure 1 reveals the research framework, includes determining the research object, background (significance of research object, issues, and theoretical preferences), problem statement, and the objectives. Research method includes preparation phase, data collecting phase, analysis phase, and conclusion phase, which can be seen in Figure 2.

**Preparation Phase**

This phase includes: [1] determine topic of research, that is "The Usage of Spaces in Pasar Beringharjo Yogyakarta" and title, that is The Usage of Retail and Circulation Spaces in Pasar Beringharjo Yogyakarta; and [2] arrange for the permission from The Municipality of Yogyakarta and The Market Management Office of Pasar Beringharjo Yogyakarta to obtain data.

**Data Collecting Phase**

In this phase, it is necessary to comprehend the whole actual condition of Pasar Beringharjo by understanding general condition of Pasar Beringharjo and understanding the usage of spaces in Pasar Beringharjo through learning the history of Yogyakarta, in general, and the history of Pasar Beringharjo, specifically, and through understanding and observation of the division of space utilization in Pasar Beringharjo Yogyakarta.

Method of data collecting are literature study, survey, and exploration of the information from The Market Management Office of Pasar Beringharjo Yogyakarta. Literature study uses related references, particularly design criteria for standard dimension of retail spaces mentioned by Pareser & Zelenik (1979), Neufert (1992), and De Chiara & Crostive (2001). Survey has been done by observation, photos documentation, and sketches of the usage of spaces and measurement using proportion comparison. The information obtained from The Market Management Office of Pasar Beringharjo includes the history of Pasar Beringharjo, Construction Drawing of Pasar Beringharjo, and the module of the usage of retail and circulation spaces.

**Analysis Phase**

Data analysis has done by comparing standard dimension of retail and circulation spaces mentioned by Pareser & Zelenik (1979), Neufert (1992), and De Chiara & Crostive (2001) and retail and circulation spaces used in Pasar Beringharjo Yogyakarta based on six main variables which include dimension of activity zone for sellers, dimension of circulation zone, dimension of shelves, dimension of two-way-displaywarehouses, dimension of counter tables, and dimension of hanging merchandises.

**Conclusion Phase**

Conclusion is obtained by counting the percentage of the number of variable in retail spaces which shows dimension appropriately over 50 per cent based on design criteria for standard dimension of retail spaces mentioned by Pareser & Zelenik (1979), Neufert (1992), and De Chiara & Crostive (2001) and the percentage of the number of circulation spaces which the usage suitable with design criteria of the standard dimension.

Population in this research is the seller who legally has a kiosks and pays tax to The Management of Pasar Beringharjo. Sample is chosen based on the zones, that are Pasar Beringharjo Barat, Pasar Beringharjo Tengah, and Pasar Beringharjo Timur. Pasar Beringharjo Barat has one storey; 5 retail spaces and 5 circulation spaces are chosen to be observed. Pasar Beringharjo Tengah has three storeys. At the first floor there are 4 retail spaces and 4 circulation spaces, spaces are chosen to be observed; at the second floor, there are 3 retail spaces and 3 circulation spaces are chosen to be observed; while at the third floor, there are 4 retail spaces and 4 circulation spaces are chosen to be observed. Pasar Beringharjo Timur has three storeys. At each of the floor level, there are 3 retail spaces and 3 circulation spaces are chosen to be observed, so that there are 9 retail spaces and 9 circulation spaces. In sum, there are 25 retail spaces and 25 circulation spaces were chosen as samples.

Table 1 shows the number of retail spaces and circulation spaces which was observed at each floor level in each zone. Observation conducted based on determined variables, that are the width of activity
zones for sellers; the width of circulation spaces; dimension of shelves (maximum-minimum height of shelves and the width of shelves); the width of two ways-display; wardrobes, dimension of counter tables (the width and the height), and dimension of hanging merchanides (maximum, height of top hanger, the height of lower hanger, and the width of hangers).

Fig. 1. Research Framework
Source: Herliana, 2015

Table 1. The number of retail spaces and circulation spaces observed on each floor level in each zone

<table>
<thead>
<tr>
<th>Number</th>
<th>Zone</th>
<th>Floor level</th>
<th>The number of the observed Retail Spaces</th>
<th>The number of the observed Circulation Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pasar Beringharjo Barat</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Pasar Beringharjo Tengah</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Pasar Beringharjo Tanger</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Herliana, 2015
RESULT

Based on six variables which are describe into twelve variable, 25 samples of retail spaces and 25 points of circulation spaces which are located in Pasar Beringharjo Bantak, Pasar Beringharjo Tengah, and Pasar Beringharjo Timur on the first, second, and third floor; and Pasar Beringharjo Timur on the first, second, and third floor; are observed. Data, which is obtained, is compared with design criteria for standard dimension of retail and circulation spaces mentioned by PanerboZelnik (1979), Neufert (1992), and De Chiara&Craibie (2001).

Design Criteria for Standard Dimension of Retail and Circulation Spaces

Literature study shows that the standard dimension of retail spaces mentioned by PanerboZelnik (1992) are similar to De Chiara&Craibie (2001). Neufert (1992) said different dimensions slightly, but it is not significantly different. Table 2 reveals design criteria for standard dimension of retail spaces and circulation spaces based on PanerboZelnik (1979), Neufert (1992), and De Chiara&Craibie (2001).

Result of Comparison to Standard Dimension

Table 3, Table 4, and Table 5 shows the conformity of dimension in retail spaces at Pasar Beringharjo Bantak, Pasar Beringharjo Tengah, and Pasar Beringharjo Timur, respectively, compare with the standard dimension based on PanerboZelnik (1979), Neufert (1992), and De Chiara&Craibie (2001). Percentage of standard dimension for each kiosk refers to six variables, which are described into twelve variables, that are: [1] the width of activity zones for sellers; [2] the width of circulation spaces, which is described into first level and second level of public circulation; [3] dimension of shelf, which is describe into maximum-minimum height of shelf and the width of shelf; [4] the width of two ways-display wardrobes; [5] dimension of counter tables, which is describe into the width and the height of counter table, and [6] dimension of hanging merchandises, which is describe into maximum height of top hanger/hanging merchandise, the height of lower hanger/hanging merchandise, and the width of hanger.

The percentage of standard dimension appropriate for each kiosk is calculated by counting the number of variables which appropriate with the standard dimension divided by the number of variables used in displaying commodities. For example, if the kiosk does not use the strategy of hanging merchandise, consequently, the variable of dimension of hanging merchandise is not counted as a divisor.
Table 3. The conformity of dimensions in retail spaces at Pasar Berendang-Johor compare with the standard dimensions based on Panoski & Clark (1970), Newson (1981), and DeChant & Gossie (2001).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Standard Dimension (cm)</th>
<th>Kiosk 1</th>
<th>Kiosk 2</th>
<th>Kiosk 3</th>
<th>Kiosk 4</th>
<th>Kiosk 5</th>
<th>Conformity for each variable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The width of activity zone</td>
<td>75 - 125</td>
<td>100</td>
<td>60</td>
<td>60</td>
<td>100</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>The width of circulation zone</td>
<td>397.2-304.8</td>
<td>270</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>500</td>
<td>10</td>
</tr>
<tr>
<td>- First level of public circulation</td>
<td>167.6-228.6</td>
<td>50</td>
<td>100</td>
<td>80</td>
<td>120</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>- Second level of public circulation</td>
<td>182.9 (Male)</td>
<td>200</td>
<td>160</td>
<td>200</td>
<td>170</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Dimension of shelves</td>
<td>45.7-55.9</td>
<td>45</td>
<td>55</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>- Lowest height of shelf</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>100</td>
<td>30</td>
<td>-</td>
<td>60</td>
</tr>
<tr>
<td>- Highest level of shelf</td>
<td>167.6 (Female)</td>
<td>200</td>
<td>160</td>
<td>200</td>
<td>170</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>- The width of shelf (minimum)</td>
<td>76.2 - 91.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Dimension of counter display</td>
<td>45.7 - 61.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>80</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>- The width of counter table</td>
<td>88.9 - 91.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>90</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Dimension of hanging merchandise</td>
<td>50.8 - 66 (dresses)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>- Maximum height of top hanger</td>
<td>182.7</td>
<td>200</td>
<td>170</td>
<td>200</td>
<td>-</td>
<td>250</td>
<td>25</td>
</tr>
<tr>
<td>- The height of lowest hanger</td>
<td>106.7</td>
<td>90</td>
<td>130</td>
<td>130</td>
<td>-</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>- The width of hanger</td>
<td>73.1 - 76.2 (coats)</td>
<td>44.44</td>
<td>62.5</td>
<td>37.5</td>
<td>83.71</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Percentage of standard dimension appropriateness for each kiosk (%)

Source: Author's Analysis, 2016.

Table 4. The conformity of dimension in retail spaces at Pasar Berendang-Johor compare with the standard dimensions based on Panoski & Zelinski (1979), Newson (1982), and De Chant & Gossie (2001).

| Variables | Standard Dimension (cm) | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | K 7 | K 8 | K 9 | K 10 | K 11 |
|-----------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| The width of activity zone | 75 - 125 | 60 | 75 | 60 | 60 | 100 | 60 | 75 | 80 | 100 | 60 | 54.56 |
| The width of circulation zone | 397.2-304.8 | 180 | - | 240 | 200 | 240 | 240 | 200 | 310 | - | 260 | 22.2 |
| - First level of public circulation | 167.6-228.6 | 100 | 100 | 120 | 120 | 150 | 120 | 60 | 80 | 40 | 140 | 60 |

Code key for each variable (%)

To be continued in page 6.
<table>
<thead>
<tr>
<th>Statement of shelves</th>
<th>30</th>
<th>40</th>
<th>0</th>
<th>0</th>
<th>200</th>
<th>100</th>
<th>0</th>
<th>0</th>
<th>41.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Lowest height of shelf</td>
<td>407.6</td>
<td>250</td>
<td>250</td>
<td>180</td>
<td>200</td>
<td>200</td>
<td>130</td>
<td>160</td>
<td>33.33</td>
</tr>
<tr>
<td>(Female)</td>
<td>182.9</td>
<td>(Male)</td>
<td>9</td>
<td>50</td>
<td>45</td>
<td>60</td>
<td>45</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>- The width</td>
<td>76.2</td>
<td>91.4</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>of shelf</td>
<td>(minimum)</td>
<td>45.7-55.</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>- The width</td>
<td>61.5</td>
<td>91.9</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>of counter table</td>
<td>45.7</td>
<td>60</td>
<td>100</td>
<td>60</td>
<td>60</td>
<td>100</td>
<td>70</td>
<td>40</td>
<td>37.5</td>
</tr>
<tr>
<td>- The height</td>
<td>88.9</td>
<td>91.4</td>
<td>100</td>
<td>80</td>
<td>90</td>
<td>90</td>
<td>110</td>
<td>110</td>
<td>50-8</td>
</tr>
<tr>
<td>of counter table</td>
<td>172.7</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>- Minimum height</td>
<td>106.7</td>
<td>110</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>of top</td>
<td>50.8</td>
<td>60</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- The width</td>
<td>71.1</td>
<td>90.2</td>
<td>(dresses)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of hanging</td>
<td></td>
<td></td>
<td>(coats)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>merchandise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of standard</td>
<td>33.3</td>
<td>42.9</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>dimension</td>
<td>25</td>
<td>88.9</td>
<td>55.6</td>
<td>14.3</td>
<td>44.4</td>
<td>50</td>
<td>40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>appropriateness</td>
<td>for each kiosk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

K-Kiosk
Source: Author's Analysis, 2016

<table>
<thead>
<tr>
<th>Section</th>
<th>Standard Dimension (m)</th>
<th>Kiosk 1</th>
<th>Kiosk 2</th>
<th>Kiosk 3</th>
<th>Kiosk 4</th>
<th>Kiosk 5</th>
<th>Kiosk 6</th>
<th>Kiosk 7</th>
<th>Kiosk 8</th>
<th>Kiosk 9</th>
<th>Conformance to each standard (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The width of activity area</td>
<td>57.125</td>
<td>60</td>
<td>75</td>
<td>80</td>
<td>76</td>
<td>75</td>
<td>60</td>
<td>75</td>
<td>80</td>
<td>66.67</td>
<td></td>
</tr>
<tr>
<td>The width of circulation zones</td>
<td>297.2-308.8</td>
<td>160</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>200</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>- First level of public circulation</td>
<td>167.6-228.8</td>
<td>90</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>90</td>
<td>80</td>
<td>85</td>
<td>140</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Dimension of shelves</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>200</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>- Lowest height of shelf</td>
<td>167.6</td>
<td>250</td>
<td>160</td>
<td>150</td>
<td>230</td>
<td>180</td>
<td>160</td>
<td>200</td>
<td>62.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Height of shelf (Mote)</td>
<td>45.7-55.9</td>
<td>60</td>
<td>45</td>
<td>60</td>
<td>45</td>
<td>50</td>
<td>60</td>
<td>45</td>
<td>87.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The width of two superimposing sardines</td>
<td>76.2-91.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Dimension of counter tables</td>
<td>45.7-61.0</td>
<td>100</td>
<td>120</td>
<td>80</td>
<td>120</td>
<td>80</td>
<td>100</td>
<td>11.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The width of counter table</td>
<td>88.9-91.4</td>
<td>100</td>
<td>90</td>
<td>90</td>
<td>100</td>
<td>90</td>
<td>70</td>
<td>61.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension of hanging merchandises</td>
<td>172.7</td>
<td>170</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>-</td>
<td>200</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Maximum height of top hanger hanging merchandises</td>
<td>106.7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The height of lowest hanger hanging merchandises</td>
<td>50.8-66 (Dress)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of standard conformance to each kiosk</td>
<td>11.28</td>
<td>50</td>
<td>50</td>
<td>37.5</td>
<td>62.5</td>
<td>11.11</td>
<td>50</td>
<td>47.85</td>
<td>32.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author's Analysis, 2016
Tables 6 and 7. The conformity of dimension in circulation spaces at Pasar Daring/Datar and Pasar Tengah compare with the standard dimension based on the regulations by the Ministry of Girls and Women's Affairs (1979) and the Ministry of Trade (1992). The sources of the data for the Pasar Daring/Datar were collected by the first author during her fieldwork in 2009 while for Pasar Tengah the data were collected by the second author in 2009. The numerical data are presented in Tables 6 and 7. The tables reveal that 60% of the observed circulation spaces are smaller than the standard design criteria for circulation spaces. It is advised that the standard design criteria be applied in the construction of future public spaces.

<table>
<thead>
<tr>
<th>Number</th>
<th>Circulation Spaces</th>
<th>The width on the As-built Drawing (cm)</th>
<th>Standard Dimension of the width on circulation spaces (cm)</th>
<th>The actual usage of the width in circulation space (cm)</th>
<th>Conformity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Circulation Space 1</td>
<td>100</td>
<td>160</td>
<td>160</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Circulation Space 2</td>
<td>150</td>
<td>220</td>
<td>220</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Circulation Space 3</td>
<td>200</td>
<td>300</td>
<td>300</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Circulation Space 4</td>
<td>250</td>
<td>400</td>
<td>400</td>
<td>No (x)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Husna, 2011.

<table>
<thead>
<tr>
<th>Number</th>
<th>Circulation Spaces</th>
<th>The width on the As-built Drawing (cm)</th>
<th>Standard Dimension of the width on circulation spaces (cm)</th>
<th>The actual usage of the width in circulation space (cm)</th>
<th>Conformity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Circulation Space 1</td>
<td>100</td>
<td>160</td>
<td>160</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Circulation Space 2</td>
<td>150</td>
<td>220</td>
<td>220</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Circulation Space 3</td>
<td>200</td>
<td>300</td>
<td>300</td>
<td>No (x)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Circulation Space 4</td>
<td>250</td>
<td>400</td>
<td>400</td>
<td>No (x)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Husna, 2011.
Table 8: The conformity of dimension in circulation spaces at Puran Berringin. Time compare with the standard dimension based on Pasero & Zelinka (1979), Metford (1992) and El-Chaar & Cushnie (2011)

<table>
<thead>
<tr>
<th>Number</th>
<th>Circulation Spaces</th>
<th>The width on the As-built Drawing (Dinis 2003) in cm</th>
<th>The actual usage of the width in circulation space (cm)</th>
<th>Conformity: Yes (Y) or No (N)</th>
<th>Necessary Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Circulation Space 1</td>
<td>300</td>
<td>297.2-302.8</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Circulation Space 2</td>
<td>170</td>
<td>167.6-228.6</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

Source: Heriana, 2015

Circulation space is used to display the commodities and as the activity zone of buyers and sellers; there are chairs for sellers who are waiting for buyers and offering their commodities.

Circulation space is used to display the commodities and as the activity zone of buyers and sellers; there are chairs for sellers who are waiting for buyers and offering their commodities.

Users of this passage are persons who walk into The Market Management Office, so there is only a few people pass by. Although there is different in a floor level (17 cm), but it is suitable with the standard because the space used for column and floor level height.

The owners of the kiosks are more relatively organized in arranging their commodities, so that the circulation space is only used to circulate. This passage is used by seller's chair, stack of commodities, and casual buyers. Although, there is different in a floor level (20 cm), but the passage conform to the standard and is used approximately.

To be continued in page 10
DISCUSSION

According to Green (1986: 12), the retail store has three major design elements, they are display area, service area, and circulation spaces. The relationship or spatial organization of these areas is determined by the same factors that control the layout of any commercial space, i.e. the efficient accommodation of the space requirements of equipment, products, and people. However, differing from other commercial installations, the retail stores must satisfy two other factors, they are visitors must be attracted to come and induced to buy products.

Display areas are the important part of retail store. Display is a strategy which presents the merchandise to the visitors in its favorable light and allows the visitors to evaluate and select products for purchase. Green (1986:23) stated that there are two elements to a display, they are product presentation and product evaluation. The product-evaluation area is a space directly in front of the display or adjacent to it where a customer may review the product, read any information related to the product or have a salesperson explain about the product. If product-evaluation area is required, it will often take up part of the aisle. The amount of the spaces needed varies among different people and cultures. However, if the product-evaluation space is not large enough to provide the zone of psychological protection which act as a buffer against perceived threats, a visitor may become annoyed by the constant passage of other visitors through hit or her zone, that he or she will leave the store without buying anything.

Service area can be the activity zone for sellers or storage spaces. Service area are usually designed for maximum efficiency, accessibility, and optimum equipment placement and they are generally located at the back of the store because the area which is close to the front are too valuable as selling space to be used for service activities. Circulation paths should be simple. Since the assembled merchandise usually offers a wide variety of visual experiences, creating a complicated circulation route is unnecessary. Circulation spaces must be clear enough, so that the visitor focuses on the display. Circulation paths are also the means of emergency path. The width should be proper to fulfill building-code requirements.

It is important that the retail space is designed to allow the visitors to determine easy entry and escape routes. The visitors should be able to sense the layout of the entire retail space, whether it is small or if it is large. This sense will make the visitors feel secure and may entice him to come. Open and accessible retail spaces can be achieved by providing transparency, that is a good view of the inside of the retail space through the storefront. Transparency can be achieved by maintaining lower display fixtures in the front of the retail space, to allow view into the depth of the retail space.

The image of retail and circulation spaces on trading activity in Pasar Beringharjo is affected by: [1] the number of users, they are sellers and visitors, [2] method or strategy in offering commodities and the quantity of commodities, [3] pattern of activities.

Users in trading activities who are observed are the
sellers who rent the retail space legally and the
visitors. In one retail space (kiosk), visitors can be
served by one person or more than one person. The
person might be not the owner who rent the kiosk, but
the person in charge. The number of person who serves
visitors will affect on the width of activity space for
sellers. If the seller more than one person, they will use
circulation spaces as their activity zone. The tendency
that occurs in 20 points of the observed circulation
spaces (80% of all the observed points), there are display
of commodities which reduce the width of circulation
spaces (Figure 3). Consequently, the activity space for
visitors takes place in circulation spaces. Therefore,
the width of circulation zones seems uncomfortable and
narrow. If there are a lot of visitors come to one kiosk,
the activity zones for visitors could be doubled. It
could be not only just one, but can be two or three
lines. In this condition, the visitors find difficulties to
pass by.

Method or strategy in offering commodities and the
quantities of commodities will also affect the usage of
retail and circulation spaces. In the kiosk which sell
batik clothes, the commodities are not only kept and
arranged in the shelves, but are also hung or even
displayed in mannequins, so that it will look as it is
wore. However, in retail spaces which sell fabric, bed
sheet, batikware, or blanket, these commodities are fold
and arranged in orderly fashion. In the peddler kiosk,
the commodities should arranged orderly, grouped
with specific criteria, so that they are easy to find. It is
different with the kiosk which sells food, such as rice
or cooking spaces which needs a certain container.
Some kiosks have surplus in stocks, so that they are
arranged outside the limits of the kiosks, and kept in the
circulation zone surrounds (Figure 4). There are also
kiosks which have the storage area in the kiosks (Figure
5).

The kiosks which sell fruits and vegetables store
their commodities on baskets or boxes, but sometimes
in disorderly arrangement. Characteristics of
commodities will determine the method and strategy in
offering the commodities. The method in selling meat
and vegetables will be different with the method in
selling fruits and vegetables. The kiosks which sell
meat need tables and source of water in order to keep
clean, but the ones which sell fruit and vegetable do
not need table, but the commodities should be orderly
grouped according to their types, so it is easier to
choose. The humidity of vegetable and fruit should be
maintained to keep them fresh.

Pattern of activity related to human behavior. The
behavior of the seller who arranges her/his kiosk well
organized will cause the kiosk looks attractive to visit.
For example, there is a kiosk which is not orderly
arranged because there are boxes surrounds (Figure 6),
but there is a kiosk which has the commodities orderly
arranged in the shelves or counter table (Figure 7).
Different behavior will cause different usage of kiosk.
Some visitors choose to stand closer to visitors while
offering their stuffs. It means there is no certain
activity zone for sellers inside the kiosk. However,
There are 14 kiosks (at 50%) show conformity in the width of activity zone for sellers, whereas only 3 kiosks (at 6%) at the first level of public circulation reveal apparent conformity with the standard dimension. In the dimension of shelf, there are 4 kiosks (at 16%) do not use shelf in displaying their commodities. The highest percentage in the variable of the dimension of shelf is shown by the minimum width of shelf, 66.67% of 21 kiosks, while the least percentage is shown by the lowest height of shelf, at 42.85% of 21 kiosks. In the variable of the width of two ways-display wardrobes, there is no kiosk uses two ways-display wardrobes.

In the variable of the dimension of counter table, 18 kiosks (at 72%) use counter table to display their commodities. Only 4 kiosks of 18 kiosks (22.2%) has the width of counter table conform to standard dimension, while 14 kiosks (77.8%) has the width more than 45.7-61.0 cm. There are 7 kiosks (at 38.9%) conform to the standard dimension of the height of counter table, while 7 kiosks has the height higher than 91.4, and 4 kiosks lower than 88.9. In the variable of the dimension of hanging merchandise, there are only 12 kiosks (48%) use hanging merchandise; 5 kiosks (41.7%) of 12 kiosks sell clothes on hanging merchandise, while 7 kiosks (58.3%) of 12 kiosks sell non-clothes as hanging merchandise. All kiosk which sells clothes as hanging merchandise has a standard width of hanger.

In sum, two variables has the highest percentage of conformity at 50% of 25 kiosks, they are the width of activity zone and the minimum width of shelf. In contrary, the width of two ways-display wardrobe has the least percentage at 0% because there is no kiosk uses two ways-display wardrobes. The second least percentage is the width of circulation zone.

Table 9. The percentage of conformity for each variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standard Dimension (cm)</th>
<th>The number of kiosk which conform to the standard dimension</th>
<th>Percentage of conformity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The width of activity zone</td>
<td>75-125</td>
<td>14</td>
<td>56</td>
</tr>
<tr>
<td>The width of circulation zone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- First level of public circulation</td>
<td>297.2-304.8</td>
<td>3 kiosk - at first level of public circulation</td>
<td>6</td>
</tr>
<tr>
<td>- Second level of public circulation</td>
<td>107.6-128.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension of shelf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lowest height of shelf</td>
<td>30</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>- Highest level of shelf (Female)</td>
<td>167.6</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>- Highest level of shelf (Male)</td>
<td>162.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The width of shelf (minimum)</td>
<td>45.2-65.5</td>
<td>14</td>
<td>56</td>
</tr>
</tbody>
</table>

There are 4 kiosks do not use shelf.

To be continued in page 13.
CONCLUSION

Result of this research shows that based on six variables, which are described into twelve variables, the observation on 25 retail spaces and 25 circulation spaces in Pasar Beringharjo, which consists of Pasar Beringharjo Barat; Pasar Beringharjo Tongah on the first, second, and third floor; and Pasar Beringharjo Timur on the first, second, and third floor; there are 50 kiosks (40% of 25 retail spaces) which have the percentage of standard dimension appropriateness by 50% or over 50% and 6 points of circulation spaces (50% of 25 circulation spaces) which have conformed to the standard dimension of the width on circulation space.

Comparing twelve variables which are observed two variables has the highest percentage of conformity at 50-25 kiosks, they are the width of activity zone and the minimum width of shelf.

REFERENCES