Spatial adaptation strategies of HBE in Kampong Batik Trusmi Cirebon

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Abstract. Home-Based Enterprise is a business that relies on households [1]. With the existence of dual-function at home, both economic and domestic activities that are mutually mixed will ultimately affect the interiority of its inhabitants. In Indonesia, HBE is one of the implemented business entities, and many of them are engaged in the creative economy sector, one of which is Batik production. The Case Study was one of the HBE houses batik in the Trusmi Cirebon area. In Trusmi, there are many batik artisans use their homes as places to produce batik. The process of Batik Tulis has many process stages and requires considerable space for each stage. The question of this research is what kind of interior adaptation implemented in balancing domestic and economic activities, which is batik creating. This research also identifies the factors that influence the applied adaptations at HBE. The author takes a sample of a house that carry out Batik Tulis production, which involves many processes that occur in one house. In the discussion, the effects of the stages of the batik process on space adaptation applied by the occupants of the house to balance economic and domestic activities will be identified.

1. Introduction

Batik Trusmi Cirebon is one of the centralized areas of batik production and tourism-based areas of the household. Batik Trusmi rise as central area of batik since 1953, and until now, the area of Batik Trusmi still maintains its existence as a center for home-based enterprise areas batik in Indonesia. The Batik Trusmi area has its characteristics as an industrial area, namely the batik process, which has different stages and needs for each process. Stages of producing Batik Tulis can lead to domestic space competition and commercial space. Not only inner space at house, for some centralized industrial areas, the use of outside space can also be a clash between business activities and other activities. Even the smallest competition of space conflict will be very critical as a result of the comfort level [7], including in HBE in the Trusmi region. In the end, the batik process will affect the complexity of the order and division of space [7].

Adaptation is a process to achieve a balance between humans and the surrounding environment [5]. The conflict of batik production space and domestic activity space will bring home adaptations to balance the two activities. The adaptation that arises due to the typical batik process will bring up a distinctive batik house layout. Besides, the assumption that Batik Trusmi is inherited from their ancestors resulted in many productions and sales processes being carried out together, not even in one home area [6]. The distinctive process of making Batik Tulis makes the adaptation efforts that are implemented in Trusmi to be different from other regions and result in batik home-based enterprise layouts typical of Trusmi.
2. Method
The method used is a qualitative method that consists of observation and interviews. In the observation method, the author will use codes to identify the types of adaptations that are applied to batik production home-based enterprises. Adaptation codes are based on the theory of adaptation of Home-Based Enterprise by Marsoyo [5].
After identifying the implemented adaptation on-site, the author will use the mapping method and linked it to the space requirements of each batik process.
There are three types of adaptations, based on Marsoyo adaptation theory. The theories of adaptation by Marsoyo are the results of his research in HBEs in Kampong Yogyakarta. These adaptations are named adaptation by sharing, extending, and shifting. Adaptation by sharing is a type of adaptation where domestic space in a home is intended for business and household activities. Sharing adaptation consists of using furniture for two types of activities (S-1), using furniture as a barrier (S-2), moving furniture to expand space (S-3), furniture placed vertically (S-4), minimal room arrangement (S-5), fixed partitions as boundary (S-6), and temporary partitions as boundary (S-7). [5]
While extending adaptation is a type of adaptation carried out by adding space. Adaptation by extending consists of horizontal extension: adjacent rooms (E-1) and separate rooms (E-2), vertical extensions: building another floor (E-3) and mezzanine (E-4), and annexation of public spaces consisting of permanent and temporary annexation. Based on study case in Yogyakarta, separate rooms are built due to polluting risk depending on the type of HBE. [5]
Shifting adaptation is a type of adaptation that gets around the time difference in carrying out economic and household activities. Shifting adaptation happens when there’s no adequate space for both domestic and economic activities. [5]
After identifying the type of adaptation and mapping the adaptation code at house plan, observation will be continued by discussing what factors influence the types of adaptation in batik home-based enterprise.

3. Results and discussions
In this paper, the author takes the case of the house of batik and tourist artisans asking Batik Katura. Mr. Katura's house consists of a batik process room, studio, and showroom. All economic and domestic activities are carried out at a house considering the potential for extensive homeland.
Mr. Katura has five children, all of whom are married and do not live at home. This condition resulted in the elderly father and mother had to supervise the work of the craftsmen more often due to the absence of children at home.
The type of batik that is done by Bapak Katura is Batik Tulis which has the most process stages, starting from fabric processing to finish batik. As a result, Bapak has to employ many artisans and arrange space so that the economic and domestic activities do not collide.
Based on the book Settlement of Batik Entrepreneurs in Surakarta, the space for batik itself consists of three parts, namely the wet area, which includes
a. Dry area; consists of space for writing patterns, spaces for designing, nyanting, folding fabrics, sewing rooms, warehouse, showroom, and administration rooms.
b. Wet Area; consists of a coloring room, washing room, drying, and kanji room
c. Rocks or cement cover the yard used for the batik process for drying cloth. [8]
Figure 1. Batik Katura home-based enterprise layout before several adaptations (left) and after adaptations (right).

Comparing with houses at Batik Laweyan, Mr. Katura divides the Batik process room into 3 areas: The wet area, dry area, and yard that is covered by cement and ceramics. The wet area consists of processes that need waters and dye chemicals. While the dry area includes processes that don’t need them and used more for tourism.

Mr. Katura’s home has undergone several changes due to adapting to the needs of the batik process and domestic activities over time. At first, almost all batik processes are carried out at the back of the house. However, as the business progresses and changes emerge, Bapak finally changes the spatial structure so that houses can adapt to economic and domestic activities. As a result, Bapak moves Nyanting and Sanggar room to the front of the house.

Nyanting space involves the process of kneading, wallowing, and closing. This space produces residues in the form of wax and smoke. All of these processes produce heat, resulting in thermal discomfort in the surrounding space. Moreover, the surrounding spaces are domestic spaces that produce heat, so it is not possible to carry out domestic and economic activities simultaneously.

A privacy conflict also occurs when the Nyanting room is still behind the house. Visitors can see some parts of the private space of the Nyanting room. Whereas, the transfer of the studio and the Nyanting room to the front of the house, aims to overcome the conflict in the form of spreading activities that do not benefit the elderly Mr. Katura who no longer able to carry out economic and domestic activities at the same time.

Figure 2. Conflicts that Mr. Katura encounters before implementing spatial adaptations.
Figure 3. Kinds of adaptation that implemented in Mr. Katura’s house.

3.1 Adaptation in Fabric Storage Room
The process of placing raw cloth is included in the dry area and does not produce any residue. Fabric storage is stored in the kitchen, where both domestic and economic activities done in the same space. Merging on both activities arose due to the process of laying down cloth that did not have the potential to pollute, and the existence of family ties between Mr. Katura's employees and family, so that the family privacy boundary in this space became vague. However, to separate the clothes and kitchen materials, Mr. Katura adapted the type of S-2 adaptation (use of furniture as a boundary) according to the diagram below.

Figure 4. Implemented Adaptation in the Kitchen as Raw Fabric Storage Rooms and Food Ingredient Storage.

3.2 Adaptation implemented on the porch as Ngelengreng space and a living room
Ngelengreng process takes place on the porch of the house and merges with the guest room as a place for domestic activities and economic activities. This activity was put together so that economic and domestic activities were not too scattered. These two activities were finally limited by implemented S-6 adaptation to separate the table from the living room. Same as study case that taken on HBEs in Kampong Yogyakarta [5], the guest room is also the intermediary between the domestic and economic spaces. Bapak functions guest room as a place to rest and keep an eye on workers. To be practice, Bapak also implements S-1 adaptation by using guest chairs as a place to receive domestic guests, clients, and journalists so that Bapak still can keep an eye on tourists and workers on the porch.
Figure 5. Implemented Adaptation in porch of the house. S-6 implemented at *ngelengreng* space (left) and sharing furniture (S-1) for domestic and economic activities (right).

3.3 Adaptation implemented in Nyanting Room.
Nyanting room is a space where the process of kneading, walling and closing, all of which use the Nyanting method, takes place. The Nyanting method produces heat and requires proper air circulation. Thus, Bapak applies separate rooms (E-2) by making open space in front of the house. Nyanting room is located at the front of the house to attract tourists in addition to getting sunlight. Nyanting room is also placed in front of the house to avoid thermal discomfort that has the potential to spread throughout the private area. In addition to the nyanting room, on the front of the house, a studio is built right between the main house and separate rooms (E-2) by installing a roof tarp.

Figure 6. Implemented Adaptation *nyanting* area: Batik studio (right) and *nyanting room* (left). Both rooms implement different adaptation.
3.4 Adaptation implemented in Aisle as public circulation
In between of ngisen process until the washing process, there are alternating grooves from the wet area and dry area. The area is not only passed by the employees, but also by tourists who are curious about the batik process in the wet room. This Aisle was eventually built to become a flow of economic activity and as a marker of tourist flow, so that they will not meddle in private areas. The material in the form of a cement floor is also applied to adjust the batik process which produces dye droplets when transported from the wet area to dry. Thus, Mr. Katura implemented horizontal extending: adjacent rooms (E-1) to fulfill balance between economic and domestic spaces.

![Figure 7. Implemented Adaptation in the aisle as public circulation.](image)

3.5 Adaptation implemented in Wet Area
In wet areas, some processes involve chemicals in the form of coloring liquids, wax melts, and water. The process includes the process of help, treatment (color giving), chlorine (melting wax), and washing. This process requires a plumbing system and produces residues in the form of coloring liquids and molten wax which have the potential to pollute domestic activities. Residues of the wet area have the potential to disrupt domestic activities so that this area is as far as possible separated from the private space.

![Figure 8 Circulation of ngobat process (left) and nglorod process (right) in wet area and horizontal adaptation: adjacent rooms that implemented to avoid residue process](image)
3.6 Adaptation implemented in Sunroom

The drying area is located at the back of the wet area. This area is used for drying batik after the washing process. The adaptation applied is the adaptation of adjacent rooms (E-1).

![Figure 9. Implemented horizontal extension: adjacent room (E-1) in sunroom.](image)

4. Conclusions

Following Silas' statement in Marsoyo [5], a home-based enterprise batik in the Trusmi area also consists of houses that are partially used for productive activities that have economic value. Economic activities in the Trusmi region consist mainly of batik production. This batik production has consequences in the form of space conflicts due to different domestic and economic needs but intersects with each other. To balance the two activities, HBE batik owners in Trusmi carried out various types of adaptations according to the needs of both spaces.

From the description above, the types of adaptation applied to each batik room depend on the batik process, namely the type of chemical used, the residue produced by each process and the space requirements in each process. The family condition of the owner of HBE, such as age of each family member, is also one of the determinants of the type of adaptation.

Answering the questions of this research, in Mr Katura's house, there are two types of space adaptations that implemented on interior elements, namely adaptation by sharing and extending adaptation which are divided into several sub-types which are used as boundaries to limit both activities. Sharing adaptation arises when merging occurs between economic and domestic activities. Merging in both activities occurs due to the process of batik, which does not produce much residue and does not require particular space. Meanwhile, domestic activities carried out at the location of merging do not require much privacy and can intersect, both in time and activity. The existence of family ties as the basis for the formation of HBE is also a factor in sharing adaptation in the central part of domestic space. Unlike sharing, extending adaptation arises due to the need for a batik process that requires particular space needs, produces much residue, and attracts tourists' attention. Space applied for extending adaptation is also divided into two, namely the space with the need for adjacent plumbing (adjacent space) and space without a plumbing system in the front of the house because it does not produce chemicals (separate rooms).

Based on Marsoyo study case in Kampong Batik, extending adaptation aims to avoid potential pollutions. Mr. Katura use extending adaptations to avoid pollutants that will harm the convenience of domestic activities like odor and dye chemicals as residue of Batik process.

As mentioned in Marsoyo theory and comparing to small HBEs in Yogyakarta, Bapak Katura doesn’t implement both vertical extending and shifting adaptation because Bapak has a large lot for all batik process despite the abundant process of Batik Tulis and tourists that come to learn Batik regularly. In the end, space adaptations through interior elements that are applied to homes with batik can produce a typical batik house layout which can only be found in the HBE trusmi area.

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