Child- and elder-friendly urban public places in Fatahillah Square Historical District

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Abstract. Fatahillah square as an important historical urban square in Jakarta has problems in eye level area integrative processing. Visitors cannot enjoy their time while in the square regarding their visuals, feelings, space, and bodies comfort. These also lead to other problems in which the square is lack of friendly and convenient places for children, the elderly and also the disabled, especially people with limited moving space. The research will attempt in proposing design inception for the Fatahillah Square that is using inclusive user-centered design approach, while in the same time incorporate theoretical studies of children and elderly-design considerations. The first stage of this research was building inclusive design parameter; begin with a context-led research which assesses the quality of Fatahillah square through three basic components of urban space: hardware, software and orgware. The second stage of this research is to propose inclusive design inception for the Fatahillah square.

1. Fatahillah Square, Jakarta’s Old Town Area
The Fatahillah square is the oldest public area designed and the first civic space built by the Dutch Government in 1619 located at Batavia city, now known as the city of Jakarta. The square and its surrounding building were develop at that time as the center of the Dutch government in Batavia as it was located as an adjacent to the Sunda Kelap harbor where all the trading activities had happened. Nowadays, the square is a part of Jakarta’s old town area, served as historical and popular tourism sites amongst local and foreigner. In order to rehabilitate, revitalize and maintaining the area, Jakarta municipal government alongside with architects, and other institution such as tourism, heritage council, etc., had collaborated and had done many initiatives regarding these issues since the early 1990s, after being decree as national heritage in 1972. In 2013, the Fatahillah Square was design again to be function as a public square and civic space by closing the surrounding adjacent street to vehicles, thus made it entirely as a space that only can be access by passerby on foot.

However, the current condition of the square is deemed not appropriate, as one may experience it as a very dynamic space yet strongly felt as a cluttered space. The designed space was very much responded by many art and creative plus trading activities initiated by local hawkers in addition to the planned commercial area. Yet, the “informal” activities are enjoyed by the visitors of the square, as it provided cheap and unique recreation experience. The amount of visitors were also another problem the square had to handled, as where in the weekends its density could reached the level of one cannot
moved freely within the square. On weekdays, the square attracts up to 2000-4000 visitors [1] and on weekends, the numbers were doubled [2]. According to the government of DKI Jakarta, there have been 1,572,317 visitors recorded during January to August 2014; there is a 4.27% escalation from the last year [3].

Figure 1. The location of KotaTua/Old Town Jakarta and the old image of Fatahllah Square.

These mixtures of designed space, cluttered creative and trading activities by local hawkers, and the density of visitors rounded up as problem especially in the matters of convenience. Visitors cannot enjoy their time while in the square regarding their visuals, feelings, space, and bodies comfort. These also lead to other problems in which the square is lack of friendly and convenient places for children, the elderly and also the disabled, especially people with limited moving space.

Figure 2. Fatahllah square nowadays.

2. Theory Discussion: Inclusive Design for Public Square

The approach to address the problems mentioned is built through 3 (three) theoretical learning, which are: (a) quality components of urban space, (b) inclusive design, and, (c) children friendly design and a brief study of elder friendly design.

2.1. Quality components of urban spaces

There are three interconnected components that comprised the quality of urban spaces, which are: Hardware, Software and Orgware [4]. HARDWARE refers to physical or spatial values (design values of space), in which consist of: 1) accessibility, 2) connectivity, 3) mobility means, 4) legibility and edges, 5) spatial variety, 6) environmentally friendly design, and 7) user comfort. SOFTWARE refers to usages, social and perceptual values of urban spaces, in which consist of: 1) diversity and intensity of use, 2) social activities, and 3) identity. ORGWARE refers to operational and management aspects of public space, in which consist of: 1) provision of amenities and services, 2) safety and security, and 3) management and regulations.
2.2. Inclusive design
The British Standards Institute (2005) defines inclusive design as: *The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible without the need for special adaptation or specialized design.* [5]

According to IDRC (Inclusive Design Research Center) and the Inclusive Design Institute, inclusive design is define as: design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference. It has three dimensions, which are: [6]

- **Recognize diversity and uniqueness**, where it kept the diversity and uniqueness of each individual in mind. Thus, mass solutions consider will not work well. Inclusive design recognizes the importance of self-determination and self-knowledge, thus in its design process: choices, configuration and adaptability will be the important factors.

- **Inclusive process and tools**, which means inclusive design teams should be as diverse as possible and include individuals who have a lived experience of the “extreme users” the designs are intended for. To support diverse participation and enable the design to be as closely linked as possible to the application, the design and development tools should become as accessible and usable as possible.

- **Broader beneficial impacts**, in terms that inclusive design should trigger a virtuous cycle of inclusion, impacted beyond the intended audience, and recognize the interconnectedness of users and systems.

![Figure 3. Inclusive design dimensions.](image)

2.3. Children and elder friendly design considerations
For the children, open space has a special purpose where they can play and explore the space as imaginative as it can be. The fact that sometimes forgotten by designer is children playing activities are actually invaluable ‘dress rehearsals’ for their future lives. Thus by designing and proposing public space that is children friendly, we will also be investing to new character and awareness to the future generation and by that to the future of their dwelling place [7].

When we are designing a children friendly open space that could be use but not limited to be their playground, we have to consider their age group and what are they going to play. Children are always active. They have broad imagination spheres, love to get along with each other, like to do experiments and while their attention absorbed, they also like playing in peace and quiet. Therefore, a children friendly design open space should considered containing place for:(1) physical games, (2) creative-
imaginative games, (3) social games, (4) sensorial and cognitive games, (5) therapeutic games for children with special needs, and, (6) resting and reflection space. The most recent trend of designing parks is they were considered to have chances stimulating all the 5 senses of its user, whether the adults or the young ones. The 5 senses Park should encourage its user to actively participate and interact with acoustic, visual, tactile and olfactory phenomena while at the same time learning how their own actions elicit certain responses [8][9].

For the elderly, a friendly design means it is all about enhancement and pleasantness. According to the WHO Global Age Friendly Cities guidelines, essential features that must be put into attention in designing outdoor spaces and buildings are: (1) Public areas must be clean and pleasant, (2) Green spaces and outdoor seating are sufficient in number, well maintained and safe, (3) Pavements are well maintained and non-slip, free of obstructions and reserved for pedestrians, wide enough for wheelchairs and have dropped curbs to road level, (4) Pedestrian crossings are sufficient in number and safe for people with different levels and types of disability, with non-slip markings, visual and audio cues and adequate crossing time, (5) Outdoor safety is promoted by good street lighting, police patrols and community education, (6) Services are situated together and are all accessible, (7) Special customer service arrangements are provided, such as separate queues or service counters for older people, (8) Buildings are well signed inside and outside, with sufficient seats and toilets, accessible elevators, ramps, railings, stairs and non-slip floors, and (9) Public toilets indoor and outdoor are sufficient in numbers, clean, well maintained and accessible [10].

![Figure 4](image)

**Figure 4.** Multi-sensory games for children and elder-friendly design.

3. **Building Inclusive Design Parameter for the Fatahillah Square**

The research intended to build inclusive design parameter for the Fatahillah Square by incorporating all the theoretical discourse discussed above. The first stage is to evaluate Fatahillah Square using the quality components of urban spaces. The results can be seen in the table below: [11]
Table 1. Fatahillah Square quality components recommendations.

| Evaluation Parameter | Components                                      | Recommendations                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware             | Accessibility                                   | Giving more attention to pedestrian access points, the square’s thresholds, and prioritizing the pedestrians.                                                                                                        |
|                      | Connectivity                                    | Enhance public transportation connectivity, movement patterns, node connectivity, sightlines and way-finding.                                                                                                      |
|                      | Mobility means                                  | Enhance walkability and Bicycle-friendly Design by also put into consideration: the availability of public transport, Drop-off and Taxi / Busway Stands, parking area etc.                                 |
|                      | Legibility and edges                            | Provide a clear spatial layout, a visually rich and active buildings edges, the existence of visual landmarks, focal point of activity that can be seen from the access into the area and also the permeability of this area. |
|                      | Spatial variety                                 | Acknowledged the existence of sub-spaces for different activities and providing a spatial experience for the visitors, spatial ability that has capacity to adopt temporary programs, spaces with flexible layouts to create a spatial arrangement and various conditions. |
|                      | Environmentally friendly design and Inclusive design considerations | Design streetscape arrangement, street furniture, streetlights and landscape around the square, pedestrian zones, and vehicle routes, provision of special lanes for the disabled, street signs for the disabled, bike lanes, comfortable bus stops, and comfortable sidewalks. |
|                      | User comfort                                    | Enhance the visitors comfort with considerations of the weather, shade & sunlight.                                                                                                                                 |
| Software             | Diversity and intensity of use and Economic Activities | Maintain the diversity of activities within the Square, choice of activities around Fatahillah square, mix uses (space and buildings), the arrangement of street vendors both inside and outside the square, time management for vending and other activities done around the square and in nearby buildings as to improve the economy of Fatahillah area while maintaining the size of crowd. |
|                      | Social activities                               | Provide provision of a good and various seating amenities, creating intimate places and exposure, etc.                                                                                                                                 |
|                      | Identity                                        | Fixing the image and character of the area by restoring or preserving the historical buildings and the cultural heritage in the area, preserving and improving the existing historic and symbolic value, as well as the unique buildings / natural features in Fatahillah such as cannons, museums, etc., and increasing the number of art and cultural programs. |
| Orgware              | Provision of amenities and services              | Provision of clean public toilets, first aid centers, lighting arrangements, street signs, information centers, and other facilities and amenities.                                                                 |
|                      | Safety and security                             | Preventing the event of accidents and crimes, the provision of zebra crosses, lane dividers, and features designed to avoid injuries.                                                                                                    |
|                      | Management and regulations                      | Enforce applicable regulations especially regarding street vendors, which may cause traffic and discomfort for visitors, time and event management.                                                                 |
Table 2. Fatahillah Square inclusive design parameter.

| Incl. Design Parameter | Components | Physiological | Creativity & Imaginative | Social | Sensory and Cognitive | Therapeutic | Resting & Reflecting | Psychological & Social Conditions | Green Area | Circulation | Safety | Service & Facilities | Signage |
|------------------------|------------|---------------|--------------------------|--------|-----------------------|-------------|----------------------|----------------------------------|-----------|-------------|--------|---------------------|---------|
| Diversity and uniqueness | One-Size Fits-One | ✓ | ✓ | ☐ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Adaptive Design | ☐ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Self-Knowledge | ☐ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Inclusive process and tools | Diverse perspectives | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Accessible design tools | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Accessible development tools | ☐ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Broader benefit of inclusion | Recognizing interconnectedness of users and systems | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Impact beyond the intended audience | ☐ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Virtuous cycles of inclusion | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

4. Inclusive Design Inception for the Fatahillah Square

Based upon the recommendation and the inclusive design parameter above, the team proposed inclusive design inception for the Fatahillah Square, as shown in the figure below:

Figure 5. Inclusive design inception for the Fatahillah Square.
The proposed inception will incorporate the design to the existing pedestrian area surrounding the square. It will be in a form of modular arrangement that span and distributed evenly throughout the surrounding area of the square, where it would integrate: (1) Green area served as children playground and for the needs of the elderly, (2) Elderly area that consist of seating area, (3) movable toilet and other service features needed in each section, (4) Main disabled lane that has the same accessibility with other user to enjoy the square, (5) Service terminal, including the bicycle for rent that is separated and guaranteed will not interrupt the children, the elderly and disabled visitors. The design also considers the 3 dimensions of inclusive design, in which: (a) Because of its modularity, it is recognizing the diversity and uniqueness of all of its users (i.e: the modular area served for multiple users); (b) It also guaranteed the inclusive process and tools, as it provides diverse perspectives and participation (i.e: the various range of children playing activities from physical to therapeutic ones, the social engagement by the multiple users, etc.). The design modular character will also opening accessibility for design and further development tools; (c) The proposed inception design is also not intended for just the children, the elderly and the disabled visitors. Moreover, it will response to broader audience, in which all of the users, all the visitors of Fatahillah Square and enhanced their visiting experience.

5. Conclusion
The research is only at the stage of proposing inclusive design inception for the Fatahillah Square, where it emphasized the needs of children and elderly friendly design. The next stage to be accomplished in this research will be making the prototype for one segment of the design. It will be tested, gaining feedback and refine to recommend the final design. Yet the research has shown that giving attention to other users such as the children, the elderly and the disabled is necessary and must be considered from the beginning as equal to the usual and normal users. It also proven by giving a balance and equal consideration the design eventually will be enhance and refine for all users. Inclusive design shown that by raising the issues of equality we will be having the utmost quality when experiencing design. This then will put back design into its utmost essence: improving the quality and experience of someone’s life.

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