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# Repositioning sociocultural safety and security in shaping disabled-friendly urban spaces

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**Abstract.** Sociocultural aspects are very critical in the daily life activities of people, including for the disabled, as their mobility limitation quite often cause a handicap for dependency. Disabled-friendly environment design becomes essential for their daily needs of behaviour and activities. This paper aims to investigate how sociocultural aspects guarantee the disabled's safety and security in urban public spaces in Yogyakarta, Indonesia. It searches the conceptual framework of how do the disabled consume the urban public areas, and whether the ICT (Information Communication and Technology) sufficiently support a better solution for the environment. The methods for collecting data used behaviour setting, observation of the physical environment, interviews with interrelated actors in disabled-friendly design to test the results. The preliminary findings show that the use of ICT that psychologically represents the power of techno-socio-cultural network among society is a significant matter to support the solution.

## 1. Introduction

Within the broad spectrum of urban design, the urban public space should be designed for all, used for all, enjoyed by all. It needs an inclusive and accessible design. It requires to offer aspects of safety and security. It has to be a people-friendly design for all.

According to the Government Law, The Republic of Indonesia Law Number 8, the year 2016, classifies the disabilities into 4 categories: i.e. (a) physical disability, (b) intellectual disability, (c) mental disability, and (d) sensory disability [1].

As the world's population increases more people will live in cities. According to The World Health Organisation that 15% of the world's population lives with an impairment or disability. This means more people with disabilities will be living in cities [2]. Disability itself has different wide-range of types. Besides, the disabled can be young, old, rich, poor, women, men, regardless of the ethnics and age. Therefore, having more people with different types of disabilities involved in public space activities helps planners think about the different types of exclusions and barriers that they have to face in their everyday lives. Accessibility is the key to inclusive cities.

Around the Yogyakarta City context, where the case is, Javanese social life is still dominant. Urban public space in Yogyakarta also provides some Javanese cultural attraction for festivities and ceremonies. As public spaces for socializing or meeting others and gathering activities, social surveillance to take care of all visitors is needed. The capacity of social services should give care for safety and security [3]. But, in public space sometimes Javanese attitude is not interconnected by people's behaviour. This condition is experienced by disabled people being there.



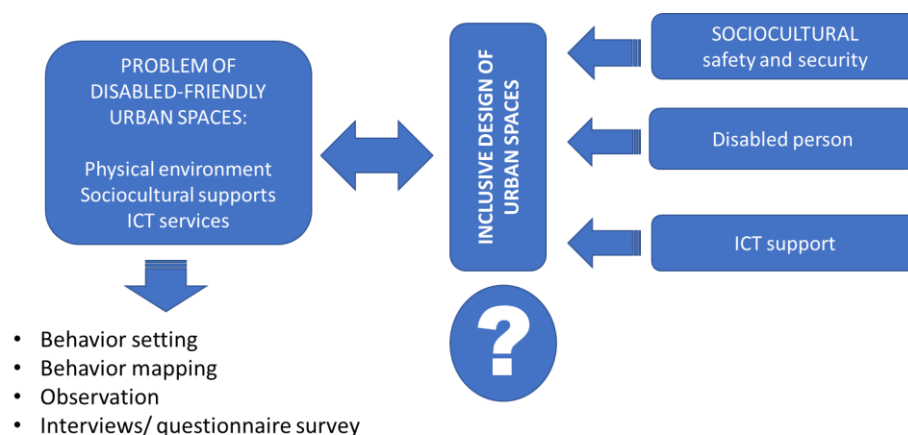
The previous study indicates that in Javanese perspectives of society, social aspects such as family trust, social trust, harmony in social community life, very much influence to feel settled. While, Javanese cultural aspects like respect to others or family and relatives, and insight attitude and cultural perception, are also psychologically very significant in supporting the continuation of activity lives [4]. Social trust in social life and family relationship is also indispensable to support the disabled existence in public spaces. This makes the friendly feeling that physical environmental safety and security is affected by psychological attitude and sociocultural support such as the principle of Javanese mutual assistance.

Since safety can be perceived as the condition of being safe from undergoing or causing hurt, injury, or loss, and security is the quality or state of being secure, something related to the protection, so that physically safety of risk accident is also necessary to guarantee the disabled independent mobility. Safety is a broad concept that can include concerns about accidental injuries, threats to health, natural disasters and so on, fears and anxieties about crime are profound influences on how safe people feel in their immediate surroundings [5]. Hence, it is necessary to explore how do the disabled consume the existing physical setting of urban public areas. In addition to that, to investigate how sociocultural aspects guarantee the disabled's safety and security in urban public spaces in Yogyakarta, Indonesia.

This study aims to investigate how the role of sociocultural aspects ensure the disabled's safety and security in urban public spaces in the context of Yogyakarta City Centre, Indonesia. Can it be replaced by Information of Communication and Technology? How the ICT sufficiently provide a better solution for the public space environment in the city.

## 2. Methods

The investigation used several methods to see the gap and problems between the existing public space and the principles and theories of inclusive design of urban public spaces, as shown in the diagram framework in figure 1 below.



**Figure 1.** Diagram framework for the investigation.

Inclusive design of urban space should cater to all users in mind – all ages and abilities, physically, socially and culturally. Access for physical facilities, sociocultural bits of help, and technological support will affect the success of public spaces. Therefore, it needs to gain the data to answer these research questions:

- What aspects of socio-cultural potentials? How sociocultural aspects guarantee their safety and security in urban public spaces?
- How is the environment setting? How do the disabled consume urban public spaces?
- Is there any ICT to support the needs of a disabled-friendly environment?

The public spaces to be observed were the main and historic street of *Malioboro*, connection lane to the traditional market and the main train station of *Tugu*, and around *Alun-Alun* (the main city square).

Methods used in the research are observation, behaviour setting behaviour mapping, and interview by questionnaire survey. The observation used to see the existing physical setting, whilst the behaviour setting and behaviour mapping to consider how the disabled people behave and what the disabled people need to do outdoor activities. Due to the pandemic situation, a questionnaire survey form was used to substitute the interview.

### 3. Results and discussion

The results are divided into three categories of main aspects, consists of the existing of physical setting condition, the sociocultural aspects of safety and security, and the ICT support. These findings can preliminary express and show the answer to the main question of why disabled people are quite rare visiting urban public spaces. Are there not enough services and facilities that cater to disabled people?

#### 3.1. Physical setting condition

The Sustainable Development Goal No. 11 states that *cities should be inclusive, safe, resilient and sustainable*. In the case of public spaces in the city, this also calls for actions and measures to ensure access to safe, inclusive and accessible for all societies. Hence, social exclusions put critical problems in obtaining and securing access, rights, and equal opportunities in public areas [6]. Therefore, creating public areas for human diversity, social inclusion, and equality is becoming the main priority and it is key for inclusive and sustainable urban future for all.

From the observation survey of the study cases, it can be found that the disabled have limitation for their mobility access in public spaces. The problems of physical setting can be summarised as follows:

- Distracted guiding line by other elements/ street furniture
- Distracted guiding line by other functions or other interest of informal sectors
- Difficulty in finding uninterrupted and constant ways
- Less clear sensory signage or it does not exist

On the other side, there are also exist some supportive physical facilities for the disabled, for example:

- Ramp to access the intended place
- Handrail to support the physical mobility impairment
- Guiding block for the blind people or vision impairment
- Visual-auditory traffic sign to give signage for the auditory impairment people
- Benches for taking a rest along the walkway
- Sufficient lighting for visual surveillance to make psychologically comfortable

The physical condition can also be seen in some of the pictures in figure 2 and 3 below:



**Figure 2.** Some problems of the existing physical setting.



**Figure 3.** Some supportive physical facilities for the disabled.

According to Meetiayagoda [7] in the study about pedestrian safety in the heritage city, new urbanism seems to have potential to prevent a model of pedestrian–vehicular conflict potentials and initiating people’s right to the city. Corresponding to this study, the pedestrian–vehicular conflict potential is high in Yogyakarta City through pedestrians and various vehicles move.

### 3.2. Sociocultural aspect of safety & security

A varied and diverse public space (use, users, design, state, time and so on) provides a place that is bright and energetic and automatically reduces insecurity. In particular, public space can reduce perceptions of insecurity by attracting a large cross-section of people at all times of the day. At the city level, social inclusion provides an environment where individuals and social groups feel they belong to the surrounding, have access to all parts and are free to fully engage in any activities [8].

During the survey of behaviour setting, the type of people disabilities were people with physical impairment with a wheelchair and blind persons, as seen in figure 4.



**Figure 4.** The type of disability found on site.

Disability of physical impairment had the experience of the not continuous route, difficult to access the way, so the person had to wait for the family walking around the shopping mall. Whereas the blind stood for begging the passer-by. Another blind took the rest on the bench while waiting for public transport. From the questionnaire survey form, the people with more varied impairments said that they experienced some problems in public space so that they wish to have their expectation to support, as shown in Table 1 below:



**Table 1.** The comparison of the existing sociocultural problems and the expected condition.

<b>The existing sociocultural problems</b>	<b>The expected sociocultural condition</b>
Lack of social trust, people are a bit egocentric	The availability of social care from around
Less awareness from others surrounding them	The availability of someone around to ask
Difficult to get help/ care on-site	Periodic security check
Anxiety about incident social safety (riot, crime)	The need for sign language in any services
Afraid of an accident without any help	
The anxiety of their limitation of mobility	

### 3.3. ICT aspect

According to Perez-delHoyo et al [9], among other groups of people, the elderly and people with disabilities are at the greatest risk of being excluded from technological enrichment but they are also the most assisted by the impact of ICT in enhancing their standard requirement of life. Their research mainly proposed design guidelines for smarter and more inclusive environments through the implementation of a sustainable model of technology, more costless and respectful with the environment both types of technology, both passive and active to improve the accessibility of cities.

As technology can play the roles whether as a support or a barrier of the physical environment so that one should carefully consider possible risks of it. Different kinds of disabilities need a various degree of ICT supports. Based on what Steinfeld and Maisel [10] mentioned about the universal and accessible design of the environment, both social and technological trends have combined to put more advantages on facilitating environmental design. Universal design seeks to avoid creating barriers and to provide as much facilitation as possible to reach human goals. Whereas accessible design tries to remove artificial restrictions to more equal opportunities for people with disabilities to access and enjoy.

From the interview survey through questionnaire form, in terms of ICT existence, it can be understood that different disabilities reveal varied obstacles when they do activities in and around public spaces, whether physically, socially, culturally, and psychologically.

The existing condition of ICT facilities in public spaces in Yogyakarta City centre, whether it is a problem or support for the disabled, and also the expected ICT facilities that might help their independency in public spaces can be briefly summarized in Table 2.

**Table 2.** The existing problems and the expected ICT facilities for the disabled.

<b>The existing ICT problems/ issues</b>	<b>The expected ICT facilities and services</b>
The CCTV system is less effective	System of CCTV for security reason
No display information for public	The availability and the accessibility of hazardous alarm in a certain spot
They do not know about the hotline	Online application of bits of help/ cares
They do not realize other online application	Hotline telephone is needed in urgent help
	Visual display of information (texts, images, and sign language) to help them feel psychologically safe
	Auditory signage
	The availability of Wi-Fi to get the internet in public spaces
	The availability of tools with the translation of sign language ability

From those expectations showed in table 2 above, the accessible design with ICT support welcomes people with disabilities to express that they are capable of. The perspective of safety and security emphasises that providing accessibility will repose the responsibility for lack of social concern from the

people around to the more advance technological environment. It helps to change people's socio-cultural stereotypes especially for the disabled in experiencing outdoor activities.

Looking at the study of Suryotrisongko et. al [11], they used four-hospitality standard to facilitate the disabled people in the city with the ICT. They were sure that by implementing four standards of friendly design for the disabled, i.e. accessible, safety, problem solve and flexible, the right public service facility can implement a smart city. However, there need different technological adjustments in every intelligence place and infrastructure development. Based on that, ICT should be quite flexible to adapt to the changes in needs and development issues. It should not be a burden or making difficulties for the disabled to do outdoor activities in public spaces. Therefore the equal chance to interact or socialize amongst others could be complemented by the ICT support with fearless sense.

It is important to identify the individual's needs within a city but also the needs of the communities, groups and neighbourhoods to integrate the knowledge and required technology innovation to develop and operate within a Smart City. These integrated needs will form smart communities that interrelate with ICT solutions in a consensus and agreed-upon approach to aid in meeting the requirements of the community [12].

Table 3 below summarises the needs of the alternative of potential ICT supports for more inclusive and accessible public spaces to repose sociocultural aspects of safety and security for the disabled to enjoy outdoor activities in the city.

**Table 3.** The needs for the inclusive and accessible design of public spaces.

<b>Parameters of sociocultural aspects of safety and security</b>	<b>Potential repositioning sociocultural aspects by ICT supports</b>
Social trust (family/relative, others)	Wider social surveillance by CCTV and easy access to speedy help
Social harmony	Interactive information and guidance, supported by an advance sensory system of ICT
Respecting others and avoiding conflict	More various services and rules, physical barrier and restriction designed with ICT
The cultural attitude of <i>gotong royong</i> (mutual assistance)	Simple operating tools for advance signage facilities for the disabled supervisions

#### 4. Conclusions

From the discussion above, it can be concluded that friendlier environments for disabled people to feel safe and secure can be classified into tangible and intangible elements. The tangible elements include:

- The disabled people need a physical environment free from accident risk, and security protection to support their mobility.
- The disabled people are very concerned with environmental barriers and dangers, for the reason of anxiety about accessibility, mobility, safety, and security.
- The services around public spaces are still less attention for the disabled with auditory impairment. No one care about the sign language the need.

Whereas the intangible elements can be summarized as follows:

- Public places should be socially foreseeable to support social safety and security.
- Surrounding people are culturally hoped to be more supportive and trusted for the disabled to accommodate cultural safety feeling
- The disabled people are sensitively anxious about the surrounding environment due to their physical limitations.

Although physical environmental safety and security are still affected by social care such as social trust (with friends and colleagues), family relationship, and cultural attitude. Nevertheless, in the public spaces, socio-cultural aspects of Javanese mutual assistance (*gotong royong*) have been shifted in terms

of safety and security guarantee. Disabled people are also very considerate to the walking distance, and connectivity of wayfinding. Hence, supportive information technology to help them in keeping socially safe and physically secure such as the availability of a CCTV system, and other online help information programs are indispensable.

It needs more advance methods to be applied to investigate the disabled's preferences in consuming their physical urban space environment. This generates to the guidance/recommendation for the designers of the built environment to consider the disabled preferences, such as social surveillance and awareness, cultural aesthetics, accessibility, and well-equipped supporting elements and ICT facilities in designing and managing the public urban spaces, to help the disabled to be more independent, and the dependency of sociocultural aspects can be complemented.

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