

The 11th International, Invention, Innovation & Design 2022

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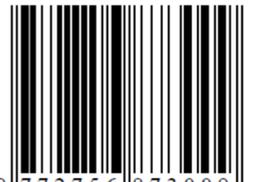
Ushering in the Age of Endemic

**THE 11TH INTERNATIONAL INNOVATION,
INVENTION & DESIGN COMPETITION
INDES 2022**

EXTENDED ABSTRACTS BOOK



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AUTISM FRIENDLY ENVIRONMENT: GUIDELINES FOR ASD FRIENDLY PARK

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ABSTRACT

The need to consider the basis of specific needs of people with ASD has gained attention in the urban design and planning fields. The opportunity for people with Autism Spectrum Disorder (ASD) to fully interact with the city is often neglected due to the gap between their special needs and design of built environment. The organization of urban planning is considered important to improve the quality of life for people with ASD. This conceptual paper provides a review of the current literature on the relationship between people with ASD and urban planning in the context of designing autism-friendly spaces. Findings of the literature review indicate several factors to be considered when designing spaces for children with ASD, including the intelligibility, sensory quality, and predictability of the built environment. Based on the literature reviews, these factors have been recognized as fundamental spatial guidelines according to the specific spatial needs of children with ASD. This research is important to explore how urban planning impacts people with ASD, and how it can be designed to improve their quality of life.

Keywords: autism spectrum disorder (ASD), urban planning, autism-friendly city, Malaysia

1. INTRODUCTION

Recently, the number of children experiencing learning difficulties is well-documented with many countries giving importance to addressing this issue. World Health Organization (2022) stated that about one in 160 children have experienced Autism Spectrum Disorder (ASD). Malaysia too, is no exception where 15,484 people has been diagnosed with ASD in 2017, compared to 12,785 in 2016. Based on the given statistic, it is expected that the number will be increasing in the future (Mat Hussin, 2020). Given the far-reaching implications of this matter on the country's economy and society, the Ministry of Health Malaysia has agreed to establish the National Autism Council to develop interventions and comprehensive supports for autistic individuals. It is crucial to ensure these people will have the opportunity to enjoy the same privileges and equal access.

Lim (2015) highlighted several issues in providing facilities for people with ASD, which includes training and public awareness about autism for a wider audience, provision for more comprehensive forms of care, and flexible financial assistance for parents with ASD children. Additionally, there are also an insufficient number of public spaces and businesses that consider the needs of individuals with autism. In recent years, the necessity to provide for people with special needs has gained increasing importance, including in the field of urban planning.

Provision of green public spaces is essential to improve the quality of life of people, especially for people with autism spectrum disorder (ASD). This is because people with ASD have special needs in order to connect with their surrounding environment. However, the opportunity of these people are often mistreated due to the limitation of providing their specific needs and the built form. Currently, there is no guidelines specifically focuses on the provision of public space for autistic groups. Therefore, it is important to explore how urban planning impacts people with ASD and how it can be redesigned to improve their quality of life. This paper outlines recommendations of built environment design that will work to support the right of every human being, regardless of their perceptions or abilities to enjoy good design and equal access.

2. FINDINGS

Autism Society of America describes ASD as ‘a complex developmental disability where signs of typically appear during early childhood and affect a person’s ability to communicate and interact with others. People with ASD are characterized by, (i) difficulties in social interactions and social communication across multiple contexts, and (2) limited and repetitive patterns of behavior, activities and interests. Basically, ASD is diagnosed based on the observation of specific behavior within these areas (American Psychiatric Association, 2013). People with ASD have difficulties to familiarize with the surrounding environment, as they are mostly likely to feel extreme distress at small changes, taking the same routes every day or difficulties with sudden changes (Tola et al., 2021).

Based on the Autism ASPECTSS Design Index 2013, there are 15 principles developed to be used as a design framework for multiple purposes and at different scales. These purposes include built environment assessment, development of autism-sensitive and autism inclusive design solutions. Thus, in the context of this paper, these principles can be adapted to propose design for ASD friendly space in Malaysia. These principles are listed as in the Table 1:

| Principles for Autism ASPECTSS Design Index 2013 | |
|---|---|
| Acoustics | An acoustic environment can be controlled to minimize background noise, echo, and reverberation. |
| Spatial Sequencing | Spatial Sequencing requires that areas be organized in a logical order, based on the typical scheduled use of such spaces. Spaces should flow as seamlessly as possible from one activity to the next through one-way circulation whenever possible, with minimal disruption and distraction, using Transition Zones which are discussed below. |
| Escape spaces | The objective of such spaces is to provide respite for the autistic user from the over-stimulation found in their environment. Such spaces may include a small, partitioned area or crawl space in a quiet section of a room, or throughout a building. These spaces should provide a neutral sensory environment with minimal |

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| | stimulation that can be customized by the user to provide the necessary sensory input. |
| Compartmentalization | To define and limit the sensory environment of each activity, organizing a classroom or even an entire building into compartments. Each compartment should include a single and clearly defined function and consequent sensory quality. The separation between these compartments need not be harsh, but can be through furniture arrangement, difference in floor covering, difference in level or even through variances in lighting. |
| Transitions | Working to facilitate both Spatial Sequencing and Sensory Zoning, the presence of transition zones helps the user recalibrate their senses as they move from one level of stimulus to the next. |
| Sensory zoning | Autism spaces should be organized in accordance with their sensory quality, rather than typical functional zoning. |
| Safety | Safety is even more of a concern for children with autism who may have an altered sense of their environment for example using hot water safety fittings and avoiding sharp edges and corners. |

(ASPECTSS Design Index 2013)

3. METHODOLOGY

This paper conducted a scoping review, specifically referring to the search framework proposed by Arksey and O'Malley (2005). Three stages of methodology process; (i) literature searching, (ii) selection of studies, and (iii) extraction and data synthesis, were conducted to explore the relationship between urban planning and people with ASD. Case studies related to the outcomes of spatial requirements, criteria, or guidelines of the planning for autism-friendly space are considered in the literature searching. Besides that, the study process involved a literature review which included various relevant books, journals, articles, proceedings, and related accessible government documents.

4. NOVELTY AND COMMERCIALIZATION: DEVELOPMENT OF AUTISM SPECTRUM DISORDER PARKS

Children with autism spectrum disorder suffer greatly with social contact and communication (ASD). Despite these difficulties, playing should still be an option for kids with ASD because it is a crucial aspect of childhood. Parks provide a wealth of advantages for kids with ASD. Playing and amusement are vital for both mental and physical development. Wu and Jackson (2017) claim that parks, or more specifically green space, may have an impact on the prevalence of autism. Numerous studies demonstrate how buildings and the environment affect people's health and how elements like temperature, airflow, noise levels, and cost are beneficial to both. When creating the list of criteria for the creation of parks for people with autism spectrum disorders, all these elements must be considered.

Due to these challenges, the primary goal of this research is to present a set of guidelines for developing a park for children with autism spectrum disorder to address their sensory integration problems by doing so by developing a park that focuses on therapeutic interference. By utilizing the elements and principles of design, the guidelines for this park focused on delivering calming benefits for hyperactive children with ASD and exciting effects for hypo-reactions. The guidelines will serve as a guide for the community as a whole and local authorities as a reference when making any decisions on current and upcoming developments that will give priority to the needs of children with ASD. Yet, no comprehensive recommendations for park planning for children with ASD have been published or gazette by PlanMalaysia or any local authorities.

In this matter as well, in Malaysia, so far, there is no Certified Autism Centre or park yet. This is because there are no guidelines that serve as a reference to confirm and make this matter officially recognized or legalized. According to Newman (2021) in NationalGeographic.com, many parks and recreation facilities in America are attempting to become Certified Autism Centers or Parks as regarding quiet spaces, staff training, and safety barriers, are just a few ways parks are becoming more autism friendly. This matter needs to be given special attention so that this issue that is not given enough attention can be resolved in a proper and systematic manner. We intend to convince authorities to construct a park that is more entertaining, pleasant, safe, and accessible for today's youngsters, especially those on the autistic spectrum. Although ASD affects a tiny number of children, it is critical to provide them with places that help them develop important living skills, meet their needs, and promote pleasant play.

While preparing for one set of individuals may not appear to be practical, planning through the lens of autism may benefit everyone. The recommendations assist planners in creating environments and infrastructure that are more useable, pleasant, and helpful to all stakeholders (but especially individuals with autism), making them feel more connected, free, safe, private (where necessary), peaceful, and, ultimately, included. Our research presents a research-backed planning and design framework that may generate useful recommendations for professionals interested in enhancing the built environment so that children with autism can flourish.

5. CONCLUSION

Children with autism spectrum disorder suffer greatly with social contact and communication (ASD). Despite these difficulties, playing should still be an option for kids with ASD because it is a crucial aspect of childhood. Parks provide a wealth of advantages for kids with ASD. Playing and amusement are vital for both mental and physical development. Wu and Jackson (2017) claim that parks, or more specifically green space, may have an impact on the prevalence of autism. Numerous studies demonstrate how buildings and the environment affect people's health and how elements like temperature, airflow, noise levels, and cost are beneficial to both. When creating the list of criteria for the creation of parks for people with autism spectrum disorders, all these elements must be considered.

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