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Future-Ready Construction and Facility Management:
Driving Research and Innovation for a Smart Built Environment

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OPTIMIZING SOCIAL INTERACTION THROUGH STRATEGIC SEATING LAYOUTS: A CASE STUDY OF PERDANA BOTANICAL GARDEN, KUALA LUMPUR

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Abstract
Seating layout in urban parks plays a pivotal role in shaping users' experience and social dynamics. This study focuses on seating configurations in Perdana Botanical Garden (PBG), Kuala Lumpur, and the impact on social interaction patterns among visitors. Addressing the lack of empirical studies on spatial design and its behavioral effects in Malaysian parks, the study utilised a mixed-method approach that combined an observational study with a distribution of questionnaires. Observations were conducted across three key zones—Perdana Canopy, Fantasy Planet, and Sunken Garden—alongside surveys via QR codes, gathering 60 responses. Findings reveal that circular and shared-table seating layouts encourage interaction while maintaining personal space, aligning with theories on environmental psychology and social comfort. Users showed a clear preference for shaded and accessible seating with aesthetic views, which influenced their likelihood to engage with others. While instances of prolonged social activity were limited, the results suggest that spatial design supports but does not solely determine social behavior. The study concludes that thoughtful seating arrangements, which include orientation, material, comfort, and proximity to main pathways enhance satisfaction and foster meaningful community engagement. These insights aim to provide valuable guidance for architects and urban designers through evidence-based strategies to increase the usability and sociability of public space.

Keywords: Seating layout, Social interaction, Urban park, Spatial configuration, Observational study

1. INTRODUCTION

Urban parks serve as vital public spaces that offer recreational, psychological, and social benefits (Grahn & Stigsdotter, 2003). In rapidly developing cities like Kuala Lumpur, spaces such as the Perdana Botanical Garden (PBG) provided necessary relief from urban density while promoting community interaction. However, despite the presence of green infrastructure, suboptimal seating arrangements may limit the potential for meaningful social engagement (Moulay & Ujang, 2016). This study aims to fill the void in empirical research examining how spatial configurations influence behavioral outcomes in Malaysian public parks.

The central problem addressed is the underutilization of public seating due to poor design, placement, and lack of social functionality. Prior studies by Whyte (1980) and Gehl (2010) emphasize how physical attributes such as seating orientation and accessibility impact social vibrancy in open spaces. Yet, little is known about their specific effects in Southeast Asian urban parks, particularly in Kuala Lumpur.

This research aims to investigate the relationship between seating layout and social interaction in PBG. It focuses on identifying the types and patterns of seating, analyzing how configurations affect social behavior, and evaluating whether the current layout

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effectively facilitates public engagement. The study seeks to provide a nuanced understanding of how spatial design can enhance or hinder interaction among diverse user groups in an urban park setting.

2. LITERATURE REVIEW

Seating arrangements influence not only individual comfort but also collective behavior in urban parks. Theories by Gehl (1987) and Hillier & Iida (2016) highlight how spatial configurations act as facilitators or barriers to human interaction. Urban parks are recognized as social ecosystems where passive and active activities contribute to well-being (Tsunetsugu et al., 2013). Factors such as seating orientation, comfort, accessibility, and aesthetics are key determinants in promoting engagement (Recep et al., 2016; Cooper Marcus & Francis, 1998).

Parks like PBG fit into the urban typology of large-scale public spaces possessing multiple user demographics and mixed functionalities. However, underutilized seating and lack of interaction point to gaps in spatial effectiveness (CHKL, 2004). While studies in Europe and North America offer design strategies, comparative insights into tropical contexts such as Malaysia are limited. This study addresses that gap by examining PBG's unique layout, user behaviour, and seating design in situ.

Key findings from the existing literature emphasized the role of cluster seating, thermal comfort, and flexible designs in facilitating interaction. Notably, circular and group-based seating arrangements have been shown to enable both privacy and engagement, depending on orientation (Spooner, 2014; Niu et al., 2015). The study builds upon these foundations while contextualizing the design implications within local climatic, cultural, and social realities.

3. METHODOLOGY

This research adopted a mixed-method approach, combining qualitative observations and quantitative survey analysis to explore seating and social dynamics in PBG. The study was conducted in three phases:

i. Initial Site Observation (Part A): Conducted at three key zones—Perdana Canopy (A), Fantasy Planet (C), and Sunken Garden (D)—to identify seating types, spatial distribution, and general usage patterns.

ii. Secondary Observation (Part B): Conducted at three different times (morning, noon, evening) to capture activity patterns and social behaviours across time.

iii. Visitor Questionnaire Survey: A total of 60 respondents participated (20 per zone), covering demographics, seating preferences, and perception of the park environment.

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4. FINDING AND DISCUSSION

The study found that seating layout significantly influences users' willingness to engage in social interaction within Perdana Botanical Garden. A majority of respondents (64.4%) agreed that circular seating arrangements enhanced their likelihood of interacting with others. Additionally, 56.7% felt comfortable initiating conversations with strangers in well-designed seating layouts, particularly those offering shade, visibility, and proximity to pathways. Face-to-face and shared-table configurations were also rated highly, with 46.7% of users acknowledging their effectiveness in fostering social engagement. Despite these positive indicators, a portion of respondents still preferred solitude, suggesting that while design facilitates interaction, personal and cultural preferences remain influential.

Figure 1: Influence of Seating Layout on Users' Likelihood to Initiate Social Interaction

Despite favorable seating designs in some areas, social interaction remained low, with only 20% observed conversing. Factors influencing low engagement included lack of shade, inconvenient location, and unwelcoming aesthetics. These findings align with Spooner (2014), who emphasizes the role of environmental comfort in social activation.

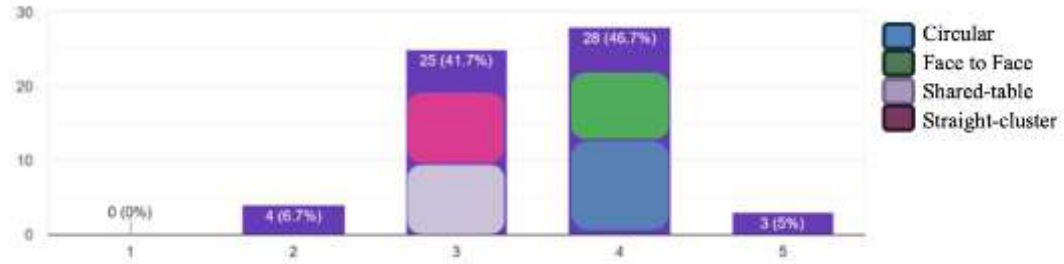

Figure 2: Seating Layout Effectiveness for Social Interaction

The findings showed that 46.7% of respondents agreed that the seating layout at PBG effectively supports social interaction, especially in circular and face-to-face arrangements. These configurations promote visibility and engagement while allowing for personal space. However, 41.7% rated the layout as only fair, indicating room for improvement in design integration and comfort.

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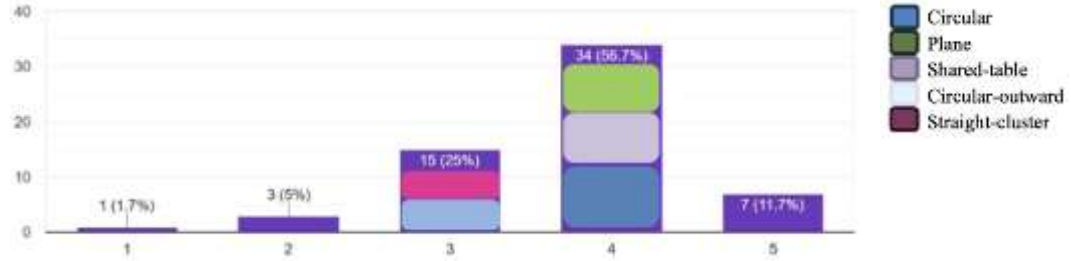

Figure 3: Seating Comfort for Initiating Conversations with Strangers

The study found that 56.7% of respondents felt comfortable initiating conversations with strangers when the seating layout provided a sense of privacy and openness simultaneously—especially in circular and face-to-face arrangements. These layouts helped reduce social barriers by offering a visual connection without intrusion. However, around 25% of respondents were neutral or cautious, indicating that while design plays a role, personal comfort and social norms also influence interaction.

Table 1:Summary of User Preferences

Attributes	Most Preferred Layout
Comfort	Circular, Shared-Table
Accessibility	Near Main Pathway
Aesthetics	View-Oriented Locations
Interaction Potential	Face-to-Face, Cluster

Interpretation reveals that while physical layout is a major contributor to social interaction, cultural norms and user expectations also play a role in determining behavior. The results suggest integrating flexible seating, climatic responsiveness, and social clustering strategies in future designs.

5. CONCLUSION

This study establishes a meaningful link between seating layout and social interaction in urban parks, using Perdana Botanical Garden as the case study. Circular and shared-table seating arrangements were found to enhance user comfort and encourage interaction, particularly when supported by strategic orientation, adequate shade, and proximity to circulation paths.

The research contributes empirical evidence for the importance of socially responsive design in Malaysian urban parks, emphasizing the effectiveness of flexible seating configurations in promoting social engagement. These findings provide valuable guidance for urban designers and policymakers in developing user-centered public space strategies.

However, limitations such as the relatively small sample size and limited exploration of cultural factors suggest that more diverse studies are needed. Future research should consider expanding the geographical scope and adopting a longitudinal approach to gain a better understanding of behavioral trends over time.

To enhance social outcomes in urban park design, it is recommended that future projects integrate varied and adaptive seating options, prioritize shaded and accessible areas with scenic views, and incorporate direct user feedback in the planning and

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design process.

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