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THE SIGNIFICANCE OF NATURAL AND SERENE ENVIRONMENT TO IMPROVE THE QUALITY OF LIVING IN TINY HOMES

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Abstract

Tiny homes are defined as a small dwelling in the form of a moveable unit, cabin or detached house which is sized to meet its occupants' needs. Besides affordability, sustainability and minimalist lifestyle, the occupants' demand for a cosy environment with a window or porch overlooking a garden. The objectives of the study are to investigate the benefits of utilising nature and serenity in promoting a supportive environment to achieve user well-being. Quantitative methodology was applied in this study using three case studies (CS1 at Urban area: Prototype Model of Microhouse, CS2 at Sub urban area: The Cabin Boutique Resort and SC3 at Outskirts area: Meraki Tiny House). The tool, "Perceived Sensory Dimensions (PSDs)" was used for respondents to evaluate the surrounding environment of the case studies by showing photos of two sensory dimension models (PSDs Nature and Serene). Close-ended questionnaires were distributed to the 21 respondents from the millennials group, to rate each perception for each case study. The results have shown that a natural and serene environment for CS3 is most preferred because of the aspirational quality of its PSDs, followed by CS2 and CS1.

Keywords: Nature, serenity, Perceived Sensory Dimensions (PSDs)

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INTRODUCTION

Kuala Lumpur dwellers spend 48% of monthly income equivalent to RM1970 on renting the accommodation (Kuala Lumpur City Hall, 2004). Facing this high accommodation rental in the city, the young graduates with salary between RM1,949 -RM2,836 are found to struggle socially and economically. One popular solution is to rent a tiny home as the “rental cost is 10 times lower than renting a flat in Kuala Lumpur” because less construction cost, less energy consumption and less maintenance (Property Guru, 2021).

The size of “tiny home” is approximately between 160 to 480 square feet (Schatz & Sidhu, 2015) and “in terms of size and instead advocates for a new approach to housing, one that values quality, not quantity” (Susanka, 2019). It is like a monk’s cell, highlighting the simplicity, frugality and environmentally friendly living.

How to live in a tiny home without feeling cramped? The environment of the tiny home needs to be considered with some green plants or garden, to ensure the quality of the space and to add to a calming ambience. Porch and window are important design elements that provide physical and visual access to the woods and part of the garden (Wilson et al., 2020). Studies indicate that contact with Green Outdoor Environments (GOE) can increase attention (Tennessen & Cimprich, 1995) and window view to nature is positively related to a low level of acute stress (Pati et al., 2008). On top of that, a garden with plants has important roles as a restorative environment “that provides opportunities to reduce direct attention fatigue” (Kaplan, 1995).

STRESS DUE TO LACK OF GREEN SPACE AND HIGHER HOUSE RENTAL IN THE CITY

City lifestyle with hectic schedule and unpleasant environments, such as concrete jungle, lack of green space, urban heat island’s effect, noise and slump, will lead to stress and may trigger mental disorder. Moreover, open spaces are slowly replaced by highways, thoroughfares, and parking bays which are considered as predominant types of open spaces in the modern urban planning perspectives (Khalid et al., 2018). The scientists found that residents who grew up with the least green space within the neighbourhood, had as much as a 55 percent increased risk of developing psychiatric disorders (NASA, 2019).

In addition, Malaysia’s housing market is considered unaffordable, where the median house price is 4.4 times median annual household income and rental would likely follow suit (Khazanah Research Institute, 2015). The average house rental at the city centre of Kuala Lumpur is RM4,338.97 a month (Lee, 2017) and residual household income is merely RM76 per month for those earning less than RM2,000 (Khazanah Research Institute, 2016). Stress induced by persistent financial constraints and housing instability, then reduces people’s

ability to make good decisions, and finally can harm physical and emotional health (Schuetz, 2017).

Thus, one out of ten Malaysian employees are either anxious or depressed, with most of them being the “B40 Millennials” group, aged between 24 to 39 in 2020 (The Edge Markets, 2020) and four out of every ten Malaysians were recorded to suffer mental health issues (The Star, 2017).

TINY HOMES AS A SOLUTION?

Living in a cosy environment with physical and visual accessibility to a green space with the price of an affordable house rental are the dreams of the working “B40 Millennials” group. DBKL is planning to launch 200 tiny homes at city centre, located at Jalan Tuanku Abdul Rahman, catering to young working adults in the B40 category (News Straits Time, 2019). This initiative isn’t about profit but about helping the “B40 Millennials” group find their footing.

The design solution focuses on a mere two (2) parking plots with size of 5-meter length and 5-meter width on a car park site owned by DBKL. The excessive car park plots will slowly be replaced by tiny homes, the driveways gradually turned into open and green spaces integrating with green belts and bike lanes, the unused car park plot in between tiny homes can be utilised into gardens and social space as shown in Figure 1. This group of tiny homes, in time, will grow into an urban micro village (Tetawowe Atelier, 2018)

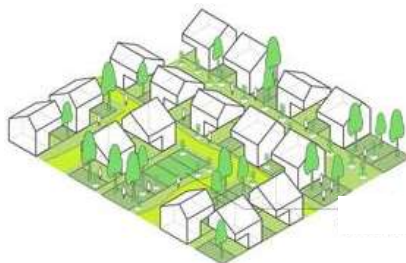


Figure 1: Tiny homes with shared green spaces
Source: Tetawowe Atelier (2018)

The design of each tiny home emphasises on the adaptability of it to various programmes and usages (Tetawowe Atelier, 2018). The ground floor consists of an open plan with kitchen or dining or porch and laundry facilities with physical and visual access to the green spaces as shown in Figure 2.



Figure 2: Open plan accessible to green spaces
Source: Tetawowe Atelier (2018)

The significance of green spaces or garden to a tiny home as daily lifestyle are, i) greenery can promote mental and physical health, also decrease morbidity and mortality in urban residents by providing psychological relaxation and stress alleviation, stimulating social cohesion, supporting physical activity, and reducing exposure to air pollutants, noise and excessive heat (Braubach, 2017), ii) human microbiome associated with natural environmental, may improve mental health (Logan, 2015), and iii) area with better access to green space characterized as “serene” has been linked to improved mental health (van den Bosch et al., 2015).

OBJECTIVES

The objectives of this research are as follows: -

- i) To investigate the benefits of natural and serene environments and how it functions to promote supportive environments which contribute to the user's well-being.
- ii) To investigate the quality of PSDs Nature and Serene in tiny home and its Green Outdoor Environment (GOE) at different settings

LITERATURE REVIEW

Green Space and Benefits of Natural and Serene Environments

Green space is considered as open space, defined as any land either gated or not, which had been specifically and fully reserved or a part of it, to be used as a garden, public park, field, public recreation area or as a public place. The availability of green space in the living environment can be measured as an important environmental factor that moderates the relationship between stressful life (Berg et al., 2010). Health policy in the United Kingdom has been increasingly advocating the use of outdoor green space to improve health, where there were benefits showing the health improvements connected to the natural environment (Kessel & Green, 2009).

An empirical study showed that natural environments are generally more restorative than built environments (Hernandez et al., 2001, Puecell et al., 2001). According to the attention restoration theory, spending time in nature relieves the stress and mental fatigue caused by “directed attention” that works, and city life require (Williams, F. 2016). It has been proven, since the 16th century’s facts by Paracelsus, “The art of healing comes from nature, not from the physician”. Research indicates a relationship between sensory perception of natural environments and human health. Urban green spaces can be viewed as elements of importance to public mental health (Grahn & Stigsdotter, 2009).

Environmental psychology studies have demonstrated that experienced qualities in green spaces can be subdivided into different “perceived sensory dimensions” (Grahn & Stigsdotter, 2009). The classification system has been developed by researchers at the Swedish University of Agricultural Sciences to experience qualities in green spaces, the two from eight of perceived sensory dimensions (PSDs) are as listed below: -

- i) Nature: A fascination with wild nature. A sense of quietness and stability. Plants seem self-sown, lichen and moss-grown rocks, old paths. Something which is not created by humans, but by the power of the mightier.
- ii) Serene: Peace, silence and signs of care. It is private, inviting and natural with the sounds of wind, existence of water elements and birds chipping. No rubbish, no weeds, no disturbing people, safe and secure. In its most distinct form, this can be described as having the character of a restful interior.

Green outdoor environment (GOE) is defined as the exterior of a tiny home either man made gardens (designed with soft and hard landscape features) or existing landscape (“matured” landscape like forest), can be accessed, used and enjoyed by the residents. In PSDs Nature and Serene are important to measure the quality of GOE.

There are many benefits of a natural and serene environment to humans, where basically nature can improve creativity by up to 50% and some activities like forest walks can decrease one's stress hormone by as much as 16%. Moreover, research suggests interacting with nature makes prisoners less violent (Williams, 2016).

Tiny Home

An architect, Sarah Susanka published the book “The Not So Big House”, portrays a backlash against supersized homes and challenges Americans to think about housing as a sanctuary that simplifies daily lives, rather than taxing the energies in maintaining it (Schatz & Sidhu, 2015). Then, in 1999, Jay Shafer built a 110 square feet home on wheels in Iowa and lived in it for 5 years with his wife and a son. His decision became instrumental in propelling the tiny home movement into the realm of possibility for thousands of North Americans and he would go on to become the first tiny home builder and designer, as well as an

author of several books (Schatz & Sidhu, 2015). The benefits of living in tiny home are as follows:

- i) Simpler facilities and more sustainable lifestyles due to smaller footprint and lesser consumption.
- ii) Affordable housing option.
- iii) Value for money and cost savings in space can be allocated for better finishing (furniture etc.), garden (green roofs, vertical landscape & etc.) and selection of the site (urban, suburban or outskirts).

Living Big in a Tiny Home

The trend of simplicity and modest proportions of living has evolved. In early 2000, the inspiring private project called “Sunset Cabin” nestled into a slope on the southern shore of Lake Simcoe, Ontario, Canada, designed by Taylor Smyth Architects. The floor area is only 275 square feet surrounded by “mature” landscape and constructed in the wilderness (Taylor Smyth Architects, 2004).



Figure 3: Sun set cabin by Taylor Smyth Architects
Source: Taylor & Smyth Architects (2004)

METHOLOGY

Case Studies

Three case studies were selected and presented in Table 1. They were selected based on three development settings namely urban, suburban and outskirts area for researchers to differentiate the quality of the natural and serene environment.

Table 1: Description of the three cases

Tiny Homes	Settings	Built Up Area	Type of Green Outdoor Environment (GOE)
CS1: Prototype Model of Micro house	Center of Urban Area	538 square feet for 2 storeys	Modern urban gardens with facilities of shared recreational space and other

			areas designed as communal kitchens
CS2: The Cabin Boutique Resort	Sub urban, near to the beach	Between 300 to 450 square feet for each cabin	Modern contemporary gardens, big lawns with resort facilities
CS3: Meraki Tiny House	Outskirts, in the jungle	520 square feet	Natural forest landscape

Source: Zainal (2020)

Data Collection

Each photo of PSDs Nature and Serene in each case study was collected and compiled into the questionnaire. Close-ended questionnaires were distributed to the potential users (aged between 24 to 39 in 2020). 21 respondents answered the questionnaires. The questionnaire consists of four parts, as follows:

- i) The first part of the questionnaire asked about the respondent's personal data, such as gender, age, city of living, educational level and profession.
- ii) The second part of the questionnaire asked about respondent's perceived sensory dimensions for PSDs Nature and Serene to each case study. The respondents had to mark and rate their perceptions on the PSDs photos attached.
- iii) The third part of the questionnaire asked about respondent's level of satisfaction with the Green Outdoor Environments (GOE). The respondents had to mark and rate their satisfactions based on PSDs photos attached.
- iv) The fourth part of questionnaire asked about respondent's opinions and comments

RESULT AND FINDINGS

The following section summarizes the results according to the four parts of research questions.

Respondent's characteristics

A total of 21 respondents participates in the survey and among them, 12 are males and 9 are females. The selected respondents are among the millennials group (aged 24 to 39 in 2020). Most respondents are in their 30s. 57% of respondents are living in urban areas, 24% living in the outskirts area and only 19% living in sub urban areas. Most of them are professionals and only 5% are non-professionals.


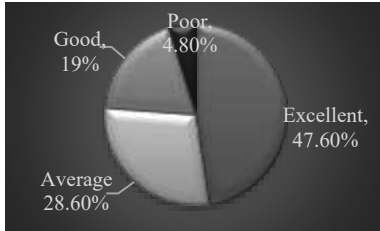

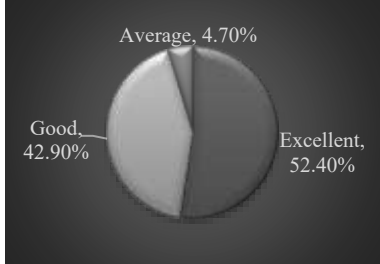
Quality of PSDs Nature and Serene

From the pie charts of quality PSDs Nature (Table 2) and Serene (Table 3), with reference to questionnaires, the ratings from good to excellent are considered as

positive factors while the ratings from poor to average are considered as negative factors.

Quality of PSDs Nature for CS3 is 96% positive factors, followed by CS2 is 95% positive factors and CS1 is only 67% positive factors.

Table 2: Quality of PSDs nature

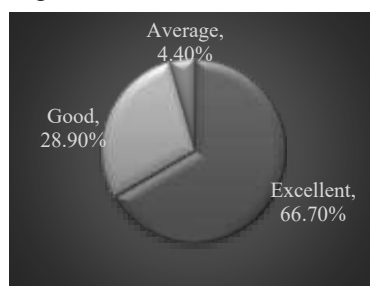
Photos of PSDs Nature	Results (good to excellent are positive factors, poor to average are negative factors)
<p>CS1: Prototype Model of Microhouse at Medan Pasar, KL. (Urban area)</p>  <p style="text-align: center;">Prototype Model of Microhouse <i>Source: Tetawowe Atelier (2018)</i></p>	<p>Positive factors= 67%. Negative factors= 33%</p>  <p style="text-align: center;">Result PSDs Nature on CS1</p>
<p>CS2: The Cabin Boutique Resort at Pantai Remis, Kuala Selangor. (sub urban area)</p>  <p style="text-align: center;">The Cabin Boutique Resort</p>	<p>Positive factors= 95%. Negative factors= 5%</p>  <p style="text-align: center;">Result PSDs Nature on CS2</p>

CS3: Meraki Tiny House at Kg. Serigala, Hulu Selangor (outskirts area).



Meraki Tiny House
 Source: Atiqah Nadiah (2018)

Positive factors= 96%.
 Negative factors= 4%



Result PSDs Nature on CS3

Source: Zainal (2020)

The quality of PSDs Serene for CS3 is 95% positive factors, followed by CS2 is 90% positive factors and CS1 is only 67% positive factors.

Table 3: Quality of PSDs Serene

Photos of PSDs Serene

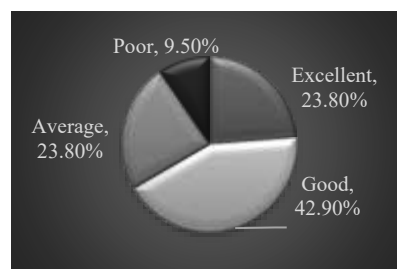
Results (good to excellent are positive factors, poor to average are negative factors)

CS1: Prototype Model of Microhouse at Medan Pasar, KL. (Urban area)



Prototype Model of Microhouse
 Source: Tetawowe Atelier (2018)

Positive factors= 67%. Negative factors= 33%

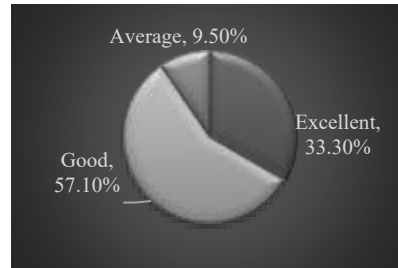


Result PSDs Serene on CS1

CS2: The Cabin Boutique Resort at Pantai Remis, Kuala Selangor. (sub urban area)



Positive factors= 90%.
Negative factors= 10%



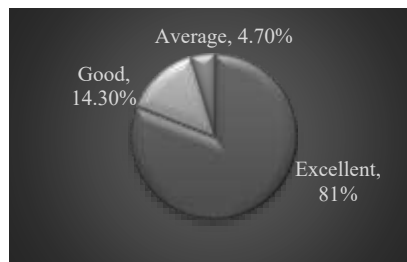
Result PSDs Serene on CS2

The Cabin Boutique Resort

CS3: Meraki Tiny House at Kg. Serigala, Hulu Selangor. (outskirts area)



Positive factors= 95%.
Negative factors= 5%



Result PSDs Serene on CS3

Meraki Tiny House
Source: Atiqah Nadiah (2018)

Source: Zainal (2020)

The comparison of both PSDs in three case studies (Table 4). CS3 perceived aspirational quality with the total of 96% positive factors, followed by CS2 with the total of 93% positive factors and CS1 perceived appropriate quality with the total of 67% positive factors.

Table 4: Comparison of satisfaction levels of the PSDs

PSDs	CS1	CS2	CS3
Nature	67% +ve	95% +ve	96% +ve
Serene	67% +ve	90% +ve	95% +ve
Total for both PSDs	67% +ve	93% +ve	96% +ve

n= 21 respondents

Source: Zainal (2020)

Satisfaction towards GOE at Three Different Settings

From the bar charts, satisfaction levels of GOE at three different settings (Figure 14) with reference to questionnaire, the ratings from very satisfied to satisfied are considered as positive factors and the ratings from dissatisfied to not sure are considered as negative factors.

CS2 and CS3 are the most satisfied, both are 18 respondents' positive factors and followed by CS1 is 16 respondents' positive factors.

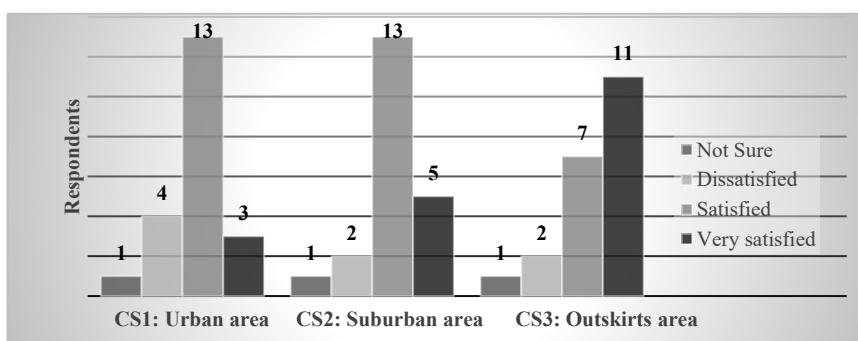


Figure 16: Level of satisfaction of GOE at three different settings
 n= 21 respondents
 Source: Zainal (2020)

CS3 and CS2 were perceived as providing significance for both sensory dimensions more than CS1. CS3 was identified as a place with relatively untouched nature (existing forest landscapes) experiences. CS2 was identified as a place with a relatively blended natural environment (man-made gardens and existing beach landscape) experiences. CS1 was identified as a place with relatively natural man-made garden experiences.

CONCLUSION

The sites were significantly associated with perception of the two analysed sensory dimensions. Better qualities and features of PSDs are related to the GOE settings. As a result, satisfaction levels of natural and serene environments are related to the setting of its green and open space. Outskirts and suburban areas promise better quality of natural and serene environments as compared to urban areas, which offer better impact to reduce stress and to enhance mental health. Therefore, living in a tiny home doesn't mean that there would be a feeling of cramp if the design of openings are fit for visual and physical access to the restorative green and open spaces.

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