

e-Proceeding

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

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Abstract

Malaysia's average house size is shrinking and living in the city also has many negative aspects ranging from overcrowding & overpriced housing. Therefore, the demand for having natural and serene environments to the living space has increased. The objectives of the study are to investigate the benefits of exploiting nature and serenity in promoting a supportive environment for achieving user well-being. Qualitative and quantitative methodologies were applied using three case studies (CS1: Prototype Model of Microhouse at Medan Pasar, Kuala Lumpur, CS2 at Sub urban area: The Cabin Boutique Resort at Pantai Remis, Kuala Selangor and CS3 at Outskirts area: Meraki Tiny House at Behrang). The tool, Perceived Sensory Dimensions "(PSDs)" was used to observe the environment and it's tiny living spaces by taking significant photos of two sensory dimension models (PSDs Nature and Serene). Close-ended questionnaires are distributed to the potential users to rate the perception for each case study. The results have shown that a natural and serene environment for CS3 is the most preferred because of the aspirational quality of its PSDs. This is followed by CS2, while CS1 only showed the appropriate quality of its PSDs.

Keywords: *nature; serenity; perceived sensory dimensions (PSDs)*

1.0 INTRODUCTION

Kuala Lumpur's dwellers spend 48% of their monthly income on renting their accommodations (Kuala Lumpur Structure Plan 2020). With higher living costs to stay in the city and lower salary for young "graduate in Malaysia between RM1,949 – RM2,836" (Jobstreet Malaysia, 2019), definitely the dwellers are struggling to survive without feeling stressful. The solution is to build tiny living spaces which have become popular nowadays. It is because the "rental cost is 10 times less than that of renting a flat in Kuala Lumpur" (PropertyGuru, 2019), less construction cost, less energy consumption, and less maintenance.

Living in a tiny living space is a growing trend all over the world nowadays, and a lot of people are making their choice to live in a dwelling with modest proportions. The size of a "tiny house approximately between 160 to 480 square feet (Small Housing BC, 2015) and "in terms of size and instead advocates for a new approach to housing, one that values quality, not quantity" (Susanka & Obolensky, 2001). It is like a monk's cell, highlighting the simplicity, frugality and environmental-friendly living.

How to live in a tiny living space (home) without feeling cramped? The ambiance and environment surrounding the tiny living space need to be considered with some green environment or garden, to ensure the quality of the space. A garden with plants has important roles as restorative environments "that provide opportunities to reduce direct attention fatigue" (Kaplan, 1995). Besides contemplation upon nature and a search for freedom of the mind, a garden functions as a social place, reduces urban heat island (UHT) and is a noise barrier. Studies indicate that contact to Green Outdoor Environments (GOE) can increase attention

(Tennessen & Cimprich, 1995) and a window view to nature was positively related to a low level of acute stress (Pati et al, 2008).

2.0 LITERATURE REVIEW

2.1 Issues of Urbanization, Overcrowding and Stress

Malaysia is one of the most urbanized countries in all of East Asia and is expected to be home to an 80% urban population by 2030 (PropertyGuru, 2018). Bank Negara (year?) estimates that the maximum price of affordable housing in Malaysia stands at RM282,000 with a floor area of between 750 square feet – 1000 square feet, which makes young Malaysians in the B40 category still struggling to own a house.

The city lifestyle with hectic schedules and unpleasant environments, such as concrete jungle, lack of green space, urban heat island's effect, noise and slump, will lead to stress and will trigger mental disorder. One out of ten Malaysian employees is either anxious or depressed, with most of them being millennials - those who will turn 24 to 39 in 2020 (the edgemarkets.com, 2020).

Should "B40's Millennials" remain renting flats in Kuala Lumpur, while Malaysia achieves a prosperous society and a dynamic economy? What will happen to the newer generations who live in flats that are still lacking comfort, with unhealthy social cultures and limited GOE's space (gardens)?

2.2 Objectives

The objectives of this research are as follows: -

- i. Investigate the benefits of natural and serene environments and how they function to promote supportive environments for achieving user well-being.
- ii. Investigate quality of PSDs Nature and Serene in tiny living space and its Green Outdoor Environment (GOE) at different settings

2.3 Literature Review on Tiny Home, Natural and Serene Environment

2.3.1 *Tiny Home*

An architect named Sarah Susanka published the book "The Not So Big House", as a backlash against supersized homes and challenged 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 sq.ft. 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 house movement into the realm of possibility for thousands of North Americans and he would go on to become the first tiny house builder and designer, as well as an author of several books (Schatz & Sidhu, 2015).

The benefits of living in a tiny home are as follows:-

- i. Simpler, facilitates a more sustainable lifestyle due to smaller footprints and less consumptions.
- ii. Affordable housing options.
- iii. Value for money and cost savings in space can be allocated towards better finishing (furniture and etc.), garden (green roofs, vertical landscape & etc.) and selection of the site (urban, suburban or outskirts).

2.3.2 *Living Big in a Tiny Home*

The trend of simplicity and modest proportions of living evolved. In early 2000, the inspiring private project called Sunset cabin nestled into a slope on the southern shore of Lake

Simcoe, Ontario, Canada, was designed by Taylor Smyth Architects. The floor area was only 275 sq.ft., surrounded by “mature” landscape and constructed in the wilderness.

With trees in full leaf, it recedes into the vegetation, integrating architecture with the landscape. The random gaps provide abstract snapshots of vegetation, lake and sky (Taylor Smyth Architects, 2004).



Figure 1: Sunset cabin by Taylor Smyth Architects

Source: Taylor & Smyth Architects (2004)

2.3.3 Benefits of Natural and Serene Environment

Empirical studies show that natural environments generally are more restorative than built environments (Hernandez et al, 2001, Puecell et al.; 2001). According to the attention restoration theory, spending time in nature relieves stress and mental fatigue caused by “directed attention” that work and city life requires (Williams, 2016). It has been proven, since the 16th century facts by Paracelsus that “the art of healing comes from nature, not from the physician”. Research indicates a relationship between sensory perception of the natural environment and human health. Urban green spaces can be viewed as elements of importance to public mental health (Grahn & Stigsdotter, 2010).

Environmental psychology studies have demonstrated that experienced qualities in green spaces can be subdivided into different “perceived sensory dimensions” (Grahn & Stigsdotter, 2010). One such classification system has been developed over the last 30 years by researchers at the Swedish University of Agricultural Sciences and the latest version distinguishes them into eight perceived sensory dimensions (Grahn et al.; 2010). Two of the perceived sensory dimensions are as listed below: -

Nature: Fascination with wild nature. Quiet and stability. Plants seem to be self-sown. Lichen and moss-grown rocks, old paths. Something created not by humans, but by the power of something mightier.

Serene: Peace, silence, and signs of care. Privacy, inviting, and natural. Sounds of wind, water, birds, and insects. 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 church interior.

Green outdoor environment (GOE) is defined as the exterior of living space 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. 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 hormones by as much as 16%. Moreover, research suggests interacting with nature makes prisoners less violent (Williams, 2016).

3.0 RESEARCH METHODOLOGY

3.1 Case Studies

Three case studies were selected and presented in Table 1. They were selected based on three different green outdoor environment's settings (urban, sub-urban and out-skirts area), for the researcher to differentiate the quality of natural and serene environments.

Table 1: Description of the three case studies

Tiny Living Spaces	Settings	Built Up Area	Type of GOE
CS1: Prototype Model of Microhouse	Center of Urban Area	538 square feet for 2 storey	Modern urban gardens with facilities of shared recreational space and other areas designated as communal kitchens
CS2: The Cabin Boutique Resort	Sub-urban, near 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)

3.1 Data Collection

Each photo of PSDs Nature and Serene at 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 consisted of four parts, as follows:-

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

4.0 RESULTS AND DISCUSSION

The following section is a summarization of the results according to the four parts of research questions.

4.1 Respondent's Characteristics


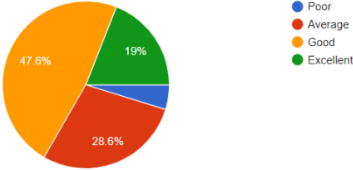

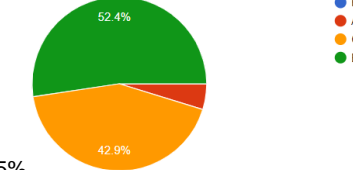

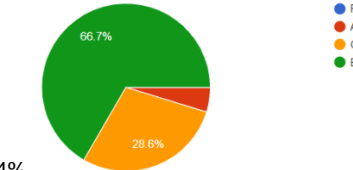
Potential users are selected based on the millenials groups (aged between 24 to 39 in 2020). A total of 21 potential users answered the questions. Among the 21 respondents, 12 are men and 9 are women. The 30s age group is the most frequent as compared to the 20s age group. 57% of the respondents are those living in urban areas, 24% living at the outskirts, and only 19% live in sub urban areas. Most of them are professionals and only 5% are non-professionals.

4.2 Quality of PSDs Nature and Serene

From the pie charts of quality PSDs Nature (Table 2) and Serene (Table 3), by referring to the questionnaire, the ratings good to excellent are considered positive factors, and the ratings poor to average are considered negative factors.

The quality of PSDs Nature for CS3 is 96% positive factors, followed by CS2 at 95% positive factors, while CS1 is only 67% positive factors.


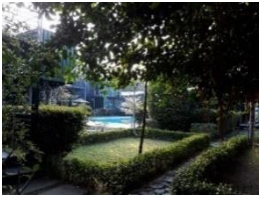

Table 2: Quality of PSDs Nature

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>Figure 2: Prototype Model of Microhouse Source:Tetawowe Atelier (2018)</p>	 <p>Positive factors= 67%. Negative factors= 33%</p>
<p>CS2: The Cabin Boutique Resort at Pantai Remis, Kuala Selangor. (Sub-urban area)</p>  <p>Figure 3: The Cabin Boutique Resort Source:Zainal (2020)</p>	<p>Positive factors= 95%. Negative factors= 5%</p> 
<p>CS3: Meraki Tiny House at Kg. Serigala, Hulu Selangor. (Out-skirts area)</p>  <p>Figure 4: Meraki Tiny House Source:Atiqah Nadiah (2018)</p>	<p>Positive factors= 96%. Negative factors= 4%</p> 

Source:Zainal (2020)

The quality of PSDs Serene for CS3 is 95% positive factors, followed by CS2 at 90% positive factors, and CS1 at 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)
<p>CS1: Prototype Model of Microhouse at Medan Pasar, KL. (Urban area)</p>  <p>Figure 5: Prototype Model of Microhouse Source:Tetawowe Atelier (2018)</p>	<p>Positive factors= 67%. Negative factors= 33%</p>
<p>CS2: The Cabin Boutique Resort at Pantai Remis, Kuala Selangor. (Sub-urban area)</p>  <p>Figure 6: The Cabin Boutique Resort Source:Zainal (2020)</p>	<p>Positive factors= 90%. Negative factors= 10%</p>
<p>CS3: Meraki Tiny House at Kg. Serigala, Hulu Selangor. (Out-skirts area)</p>  <p>Figure 7: Meraki Tiny House Source:Atiqah Nadiah (2018)</p>	<p>Positive factors= 95%. Negative factors= 5%</p>

Source:Zainal (2020)

The comparison to both PSDs at three case studies (Table 4) is described below. CS3 perceived aspirational quality achieves a total of 96% positive factors, followed by CS2 with a total of 93% positive factors. CS1 perceived appropriate quality with a total of 67% positive factors.

Table 4: Comparison of satisfaction levels to 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

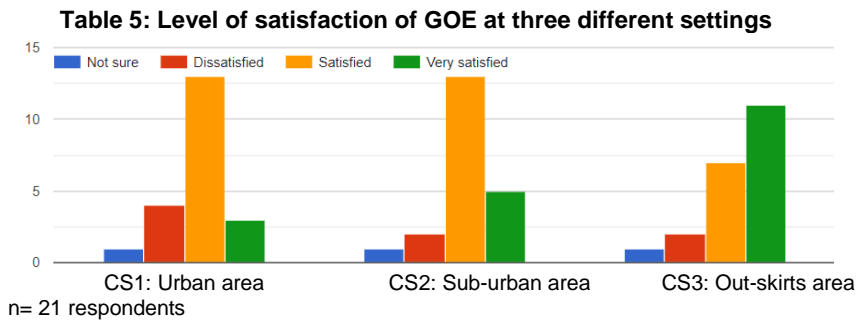
n= 21 respondents

Source:Zainal (2020)

4.3 Satisfaction to GOE at three different settings

From bar charts of satisfaction levels GOE at three different settings (Table 5) and referring to questionnaire ratings, very satisfied to satisfied are considered positive factors and ratings, dissatisfied to not sure are considered negative factors.

CS2 and CS3 are the most satisfied, both are 18 respondents showing positive factors and followed by CS1 where 16 respondents show positive factors.



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.

5.0 CONCLUSIONS

The sites were significantly associated with the perception of the two analysed sensory dimensions. Better qualities and features of PSDs are related to the GOE's settings. In conclusion, a natural and serene environment acts as a restorative environment for reducing stress and mental health. Therefore, living in a tiny space doesn't mean there would be a feeling of cramped if the design of openings are fit for visual and physical access to the restorative exterior.

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Tarikh : 20 Januari 2023

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Sekian, terima kasih.

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Saya yang menjalankan amanah,

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Setuju.

27.1.2023

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