Prospects of contemplative urban park from expert perspectives

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Abstract. The urban park is part of urban biodiversity that restore the diverse ecosystem to be resilient from rapid urbanisation impact. Also, it is an invented landscape that serves recreational opportunities as well as contemplation. However, significant evidence to measure the contemplativeness of Malaysian urban parks as an eco-psychological restoration resource is indistinct. Previously, the restorative environments have determined by personal opinions and evaluations of researchers without operationalising the empirical study on landscape design quality. This study evaluated Taman Tasik Shah Alam’s contemplativeness via expert evaluation assessed by ten Malaysian Landscape Architects. The assessment involves eight physical attributes using Contemplative Landscape Model criteria on 35 images via an online survey. Eventually, five of the most contemplative scenes are recognised as eco-psychological restoration resources to remedy psychological distress, including landscape composition types. It also highlights the necessary physical attributes of the urban park towards inventing the existing one into a contemplative environment for the betterment of communities. Thus, the contemplative landscape can serve as an antidote for people affected by psychological distress to contemplate themselves by exposing and experiencing well-preserved urban biodiversity.

1. Introduction
The global population is endlessly confronting psychological disorders. The most prevalent psychological disorders were anxiety (284 million) and depression (264 million) [1]-[2]. According to World Population Review in 2021, 4.6 per cent of the depression rate is relatively high for Singapore compare to other ASEAN countries like Thailand (4.4%), Malaysia (3.8%) and Indonesia (3.7%) [3]. In Malaysia, about 29.2 per cent of Malaysian Adults (16 years old and above) have psychological disorders [4]. This problem is not only confined to adults but also adolescents. It is evident that 1 in 5 adolescents was depressed, 2 in 5 were anxious, and 1 in 10 have stressed [5]. In reality, this scenario is associated with poverty issues [6]. Most of the affected people are low-income groups earning below RM4850.00 monthly income, called B40 in Malaysia [7]. They are difficult to seek treatment and have limited healthcare access due to horrendously high living costs [8]. However, the psychological disorder is treatable in inexpensive ways, like natural environment therapy. It seems like an antidote or preventive medicine for affected people without costly expenses. Many studies have substantiated the natural environment effectiveness [9]-[10]-[11]-[12]-[13]. For instance, forest
therapy by doing observation within 15 minutes and 30 minutes of walking has served as a restorative experience [11]. The nature-based element positively impacts alleviating negative emotions [12] and makes people feel relaxed [9]. This evidence has sufficiently proved that restorative natural environments can provide contemplation. Currently, forest areas are degrading for development concerning rapid urbanisation. The circumstances affect the natural environment to be destroyed and substituted by the invented landscape as a sustainable alternative. Promoting a sustainable development approach is vital to keep urban biodiversity safe, like a motion of ecological restoration. It is crucial to manage and restore the ecosystem to be resilient for our benefit. But, it is hard to find a significant consensus of thought on psychological restoration impact relatable to the invented landscape like urban park [14]-[15], especially in Malaysia. This study evaluates the contemplativeness of urban parks via expert evaluation among Malaysian Landscape Architect for Eco-Psychological Restoration. Previously, the assessment has determined by personal opinions of researchers on the character of urban parks without rigorous empirical study on landscape design quality [16]. In general, the restorative experience can be found inexpensively at the urban park. However, different contexts, scenes, qualities and composition of the urban park are correlated by dissimilarity of perceived restorative that needs to be investigated further.

1.1 Literature review

The abundance of studies has disclosed significant empirical evidence on the relationship between the urban park and human health [15]-[17]-[18]-[19]. The urban park has served as a restorative experience to improve mental health [18] and alleviate stress levels by doing passive and active recreation [20]. For instance, viewing three different urban park scenes within 5 minutes significantly decreases the blood pressure and heart rate and relieves stress [15]. The elements, components and compositions of urban parks will be impacted psychology in many ways [15]-[19]-[21]-[22]. First, the most prominent element is vegetation that was significantly increased cerebral activities in the human brain while viewing the actual [23] or virtual vegetation [20]. Second, the attraction of water elements through its sound, waves, colour and smell has aroused positive emotions [22] and the most significant element for restorative experience [15]. Third, the appropriate and various landforms will create visual cues to trigger more perception and experience, especially for restoration [15] that consistently underestimated. Fourth, the existence of urban wildlife like birds, fishes, and insects has improved the stress and attention of people, for instance, via watching and hearing the chirping of birds [24]. Eventually, the combination of these mention elements was commonly perceived as a suitable place for relaxation and restoration [19]. All in all, these elements describe the significant roles of urban biodiversity in human well-being.

The ability to restore natural ecosystems and psychological adaptability in an urban environment is a crucial motivator for biodiversity conservation. Urban nature environments such as urban parks and urban forests are features of the urban environment wellness [25]. Besides, the urban park also plays a significant role in environmental services such as disaster defence, wildlife habitats and thermal comfort [26]. It perhaps involves an expensive or inexpensive cost to realise the motion. However, it can compensate the cost when the appropriate intervention of urban parks demonstrates effectiveness in its environmental services [27]. Zhou, L (2021) highlighted five strategies concerning ecological restoration: design space, the richness of lines, plants communities, seasonal factors and native biodiversity [28]. Eventually, the urban park can provide multifunctional services as a symbiotic (human-nature relationship) which interdependent on the benefits of eco-psychological restoration. The extensive literature has been revealed the theories to measure restorative experience via Perceived Restoration Experience (PRE), Perceived Restorativeness (PR) and Perceived Sensory Dimension (PSD). However, the theories appear based on the theorist's impressions of natural environmental character rather than factually grounded research on landscape design quality [16]. Therefore, an evidence-based design from a landscape architecture perspective needs to be operationalised via a novel measurement called Contemplative Landscape Questionnaire (CLQ).
The contemplative value can be recognised by eight attributes such landscape layers, landform, vegetation, colour and light, compatibility, archetypal elements, artistic and the character of peace and silence [16]. First, the landscape layer refers to inextricably linked to three-level surface visibility and the comfort of long-distance vistas. Second, landform denotes the evenness and manipulation of the earth's surface, such as undulating landforms and natural lines that attract attention. Third, the seasonal variations in vegetation form, a high degree of wilderness, and the richness of the vegetation composition are aspects of vegetation attribute. Fourth, light and shadow levels that affect the setting's quality based on sunlight visibility are defined for colour and light. Fifth, compatibility is physical and visual relations on design’s quality such as well-organised, balanced and harmonious. Sixth, archetypal elements define a simple into the complex architectural structure that alters the scene's overall perspective. Seventh, the large-scaled elements relating to the human body, repetition, natural asymmetry, abstraction, and decorative vegetation are examples of art (Artistic attribute). Lastly, assessing the environment's calmness and peace is a symbol of the character of peace and silence.

Empirical data suggest that actual or virtual exposure to highly contemplative settings can activate the brain response correlated to attention restoration and stress relief [29]-[30]. Besides, the expert evaluation among those experiences on landscape design is novel to explore. Therefore, this study conducts a two-tier evaluation approach in recognising the contemplative landscape of the urban park.

2. Materials and methods

2.1 Documentation of urban park scenes

Taman Tasik Shah Alam is 43 ha of urban park sprawled in the middle of Shah Alam city. Over 36 years, it has served recreational opportunities and ecological services for the urban communities. In this regard, various studies have chosen this place as a study area for human-nature interaction studies [31]- [32] and outdoor thermal comfort studies [33]. Yet, the restorativeness of Taman Tasik Shah Alam on psychological restoration is still undisclosed. This study aims to argue that Taman Tasik Shah Alam also has a significant prospect on restorative experience. The potential scenes have identified and documented in the images file. In total, 148 images have identified during a sunny day to get appropriate natural lighting without a human figure. Then, 87 images were evaluated by three academicians of landscape architecture and medicine profession grounded by Contemplative Landscape Questionnaire (CLQ) criteria in the preliminary stage. Eventually, only 35 images have been selected for the expert evaluation among Malaysian landscape architects in Klang Valley.

2.2 Expert evaluation on contemplativeness of urban park

The selection of experts is based on specific criteria: 1) Landscape Architect (LAr) titleholder with recognition by Institute of Landscape Architect Malaysia (ILAM); 2) A key leader or principle of landscape company and 3) Experienced people (over ten years) who are actively performed in landscape projects. Around 48 potential experts within Klang Valley were identified. But, only 18 experts have the willingness to contribute to this study. They were received an invitation letter and link of evaluation respectively via email on 19 February 2021. The assessment consists of ten questions for each Image based on the Contemplative Landscape Questionnaire (CLQ). The first eight questions asked about landscape layer, landform, vegetation, colour and light, compatibility, archetypal, artistic and character of peace and silence. These questions are rated on 6 points Likert scale. The ninth question requires an expert to answer about types of landscape composition. They need to choose either canopied, enclosed, features, focal or panoramic for each Image to define contemplativeness. The last question is the level of contemplativeness as a validation question. All questions have been transformed into a Google Form. It allows them to finish their evaluation at their own pace. It is because the experts are a practitioner that has their commitment and always busy. Thus, the time is given to respond within three weeks (19 February - 5 March 2021).
3. Results and discussion

3.1. Descriptive analysis
In total, ten experts had responded and cooperated in this evaluation. Half of them (50%) were experienced over 26 years in practising landscape architecture profession. There are landscape architects who have experience in a career as far as 21-25 years (20%). Besides, 16-20 years of experience is also recorded among them (20%), and only one person revealed their experience with 10-15 years. Those experts are the principles of their own company with varied expertise that involve public and private landscape development projects. The majority of them are male, whereas only one person is female.

3.2. Reliability and validity analysis of Contemplative Landscape Questionnaire (CLQ)
This study has conducted the item-total and inter-class correlation for reliability test and Pearson Correlation Coefficient for validity test. The experts' evaluation result reached substantive and significant threshold values [16] for each test, as highlighted in Table 1 below.

| Test            | Measurement Method         | Threshold Value | Value  |
|-----------------|----------------------------|-----------------|--------|
| Reliability     | Cronbach Alpha             | > 0.7           | 0.842  |
|                 | Inter-rater agreement      | > 0.8           | 0.821  |
|                 | r-value                    | -               | 0.993**|
| Validity        | **p-value <0.001           | -               | 0.000  |

3.3. Most contemplative landscape value
Six images received the highest score from the experts, as exhibited in Figure 1 and Table 2 below. The images that have values above the 3.77 (average of half-standard deviation) [16] or above the median score (3.50) [29] are considered the most contemplative landscape. Therefore, each total score of six contemplative landscape images meets the threshold value of 3.60 (median score) in this study. Besides, the type of landscape compositions of contemplative landscape clearly defined by canopied (32%), panoramic (26%), enclosed (20%), feature (14%) and focal (8%).

(A) (B) (C)

(D) (E) (F)
Figure 1. The most contemplative landscape setting of Taman Tasik Shah Alam.

Table 2. The most contemplative landscape score.

| RANK | IMAGE | CLQ 1 | CLQ 2 | CLQ 3 | CLQ 4 | CLQ 5 | CLQ 6 | CLQ 7 | CLQ 8 | TOTAL |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1    | A     | 4.40  | 2.20  | 4.30  | 3.60  | 4.60  | 5.10  | 4.10  | 5.00  | 4.16  |
| 2    | B     | 3.80  | 3.60  | 3.70  | 4.00  | 4.40  | 4.60  | 4.00  | 5.10  | 4.15  |
| 3    | C     | 4.30  | 4.50  | 4.00  | 3.40  | 4.20  | 4.60  | 3.40  | 4.50  | 4.11  |
| 4    | D     | 3.90  | 4.00  | 3.90  | 3.60  | 4.20  | 4.00  | 4.10  | 5.00  | 4.09  |
| 5    | E     | 4.10  | 3.30  | 3.70  | 3.80  | 4.20  | 4.90  | 3.60  | 4.60  | 4.03  |
| 6    | F     | 4.10  | 2.80  | 4.00  | 3.40  | 4.20  | 4.40  | 3.90  | 4.60  | 3.93  |

Note: CLQ1: Landscape Layer; CLQ2: Landform; CLQ3: Vegetation; CLQ4: Colour & Light; CLQ5: Compatibility; CLQ6: Archetypal; CLQ7: Artistic; CLQ8: Peace & Silence

4. Results and discussion

This study has assessed the contemplativeness of Taman Tasik Shah Alam, Selangor via expert evaluation among Malaysian landscape architects for eco-psychological restoration prospects. The contemplative landscape scenes also recognised by using eight attributes in the Contemplative Landscape Questionnaire (CLQ). Besides, this study also operationalised the unconventional approach of perceived restorativeness on landscape character assessment into landscape design quality, contributing to the evidence-based design outcomes on mental health improvement. This study also verified the reliability and validity of the measurement tool. In general, the key attributes to contribute high contemplative score were landform (CLQ2 - 0.968), followed by artistic (CLQ7 – 0.944), colour and light (CLQ4 – 0.931), compatibility (CLQ5 – 0.889), landscape layer (CLQ1 – 0.873), peace and silent (CLQ8 – 0.853) and vegetation (CLQ3 – 0.828) based on the Cronbach Alpha value. Only one attribute of archetypal (CLQ6) seems negligible due to the lowest value of Cronbach Alpha (0.450). The result might be controversial in landscape composition due to a significant difference from the previous studies. This study found that being enclosed, panoramic and canopied were substantial contributors to contemplativeness. However, enclosed and canopied settings were less contemplation impact in another context [16]. It is possibly relatable to the climatic factors that open sky and long-distance views are less preferred compared to dim and short-distance views for contemplation in this study.

The most contemplative scenes at Taman Tasik Shah Alam also have revealed. The highest total score was 4.16 (Image A), with attributes of archetypal (CLQ6), peace and silence (CLQ8), compatibility (CLQ5), and landscape layer (CLQ1) were significant highest contributors. The experts agreed that archetypal attributes are strongly influenced the overall visual quality for Images A, C and E. The presence of archetypal elements such as timber and concrete also contributes to a healing environment [34]-[35]. It indicates that elements can be acknowledged by the experts to be influenced their evaluation. Furthermore, peace and silence is also an essential attribute for contemplation due to serenity of scene that contrast to the crowdedness of urban setting [36]. It can be seen in Images B, D and F that offer a tranquil environment with the presence of water, vegetation and structure elements. The argument that a splashy and wavy waterbody will arouse a positive vibe to the viewer is supported [22]. Besides, the greenery of the vegetation background is complementary to the restorative experience, which is undeniable. However, the vegetation attribute is relatively recorded low score compared to other attributes in this study. It is seemingly contradicted to the findings of previous studies [22]-[20]. Conceivably, the characteristics of native species, wilderness, and vegetation composition are unclearly defined, affecting the evaluation of experts.
The evaluation result help to visualise the contemplative capacities of the existing landscape for future intervention. Furthermore, it indicates analysing the weakness of specific attributes that affect the total score of contemplativeness. For instance, this rating information system will assist public or private sectors in using evidence-based design outcomes to enhance the potential spaces [34]. It also an ecological restoration motion to preserve the naturalness of urban parks and other green spaces. Subsequently, it can further boost the urban park's multifunctional services on the wellness of urban communities. Thus the contemplative landscape is an excellent prospect to preserve the urban biodiversity and beneficial for a restorative experience. Nevertheless, it has room for improvement in this study that needs to be highlighted. First, the expert selection might incorporate senior and junior landscape architects. The expertise of senior landscape architects on the involvement of landscape design and development projects was unquestionable. But, junior landscape architects' creative ideas and thoughts are not neglected and need to be celebrated. Second, the response rate can be increased via the involvement of landscape architects across Klang Valley. Third, the evaluation can be expended on the other urban parks and green spaces to preserve the urban natural environment. Finally, a series of neuroscience experiments can examine the restorative experience to validate the effectiveness of the contemplative landscape on psychological restoration for future endeavours.

5. Conclusions
This study recognised the contemplativeness of urban parks as a prospect towards eco-psychological restoration. It has used a rating information tool called Contemplative Landscape Questionnaire (CLQ), which proved to help identify the contemplativeness of Taman Tasik Shah Alam. Moreover, the expertise of ten Malaysian landscape architects in evaluating the contemplativeness of Taman Tasik Shah Alam yielded a significant evidence-based design outcome. Eight key attributes to achieve a restorative environment encompasses landscape layers, landform, vegetation, colour and light, compatibility, archetypal elements, artistic and the character of peace and silence. Also, the most contemplative landscapes are defined by canopied, enclosed and panoramic settings (landscape composition) that arouse positive emotion and attention. This study also relevant to the profession of the built environment in empowering and improving the naturalness of the existing urban nature. The tool of CLQ will help them analyse, synthesise and strategise a design process of urban environment intervention. The outcomes can serve as an antidote for people affected by psychological distress to contemplate themselves by exposing and experiencing the contemplative urban environments. Perhaps, it can be an economical way to alleviate the psychological distress among the affected people.

Acknowledgement
Research Management Unit, Universiti Teknologi MARA funds this research under MYRA LESTARI Grant Scheme [600-RMC/MYRA 5/3/LESTARI (029/2020)].

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