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Manicured Versus Naturalistic Landscape Style: Public Preference of Urban Park's Landscape in Kuala Lumpur, Malaysia

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Abstract

Urbanisation significantly impacts cities, altering their natural environment and greeneries into a more manicured landscape. Kuala Lumpur, Malaysia, has been experiencing a similar process of urban landscape changes since the colonial era in the early 20th Century. The government's vision of achieving a "Beautiful Garden City" has been culturally accepted and embraced by the public. Sustaining the manicured landscape demands significant maintenance effort and costs that surpass the financial capacity of the local authority. Despite the potential to manage Kuala Lumpur's urban parks towards an environmentally sustainable approach (ESA), delivering such practice in a tropical setting creates a distinct visual appearance contrary to the current manicured landscape that would challenge the local authority to gain public acceptance. This paper draws from survey findings of 258 park users of the selected urban parks in Kuala Lumpur on their preferred landscape style from randomly arranged photos of manicured (the existing landscape scene) and the naturalistic landscape (superimposed scene). The results indicate that the public, overall approves of both landscape styles for their appearance and safety attributes. Interestingly, the public would also accept changes towards a more naturalistic style considering its environmental function and aesthetic value. particularly at the water edge, followed by shrublands and semi-woodland areas. The lawn area is the least preferred area for such a landscape, being a prime social space in the park. In conclusion, this paper offers suggestions to improve the naturalistic landscape style, encouraging the local authorities to consider adopting this approach in managing tropical urban parks.

Keywords: Naturalistic Landscape, Ecological Landscape Design, Environmentally Sustainable Approach (ESA), Public Preference, Tropical Urban Parks.

Highlights

- Managing urban parks in Kuala Lumpur towards an environmentally sustainable approach (ESA) in tropical regions for environmental resilience and biodiversity
- Potential of changing the manicured landscape of tropical urban parks into a more naturalistic style based on public preference and acceptance
- Challenges of delivering a naturalistic landscape in a tropical setting present distinct visual differences from the current manicured landscape that would challenge the local authority to gain public acceptance.

Introduction

Globally, there have been growing concerns about declining urban green spaces Colding et al (2020); Nath et al (2018); Nieuwenhuijsen (2021); Wu et al (2019) and changes to urban landscapes due to the effects of climate change (Alizadeh & Hitchmough, 2019; Depietri & McPhearson, 2017; Esbah et al., 2012). An environmentally sustainable approach (ESA) is a recognised sustainable solution for enhancing the quantity and quality of these spaces amidst rapid urbanisation (Collins et al., 2019; Hwang et al., 2019; Ibrahim et al., 2020). Ecological research has long argued that urbanized areas can be considered biodiversity refuges, which has expanded the scope of conservation efforts. (Politi Bertoncini et al., 2012). Preserving and restoring biodiversity has become a primary aspect of green space management in cities, especially urban parks, where humans must engage with nature (Muratet et al., 2015). There are several advantages for individuals, the economy, and the environment from establishing forests, particularly when it comes to the growth of native woodlands (Nijnik & Mather, 2008). However, urban growth has resulted in changes to the urban landscape and decreased opportunities for people to experience and appreciate nature in an urban setting. In the context of the urban environment, nature is a landscape area where human interaction with the environment occurs harmoniously rather than destructive, as suggested by Ndubisi (2014). Thus, there is a need to deliver ESA to bring nature back into the city in promoting biodiversity conservation (Muratet et al., 2015), besides increasing human interaction with the environment to promote health and well-being (Konijnendijk et al., 2013).

Urban parks, a more extensive form of the managed urban landscape, are significant for providing ecosystem services and maintaining the ecological stability of the changing urban environment. This role has been widely recognised in developed countries. Enhancing the quality of the urban environment might be accomplished through sustainable urban park landscape design and management Idilfitri & Mohamad (2012) and sustaining a long-lasting relationship between humans and the urban environment towards environmental sustainability (Idilfitri et al., 2015). The ecological knowledge of designing and managing urban parks could contribute to this effort but requires proper intervention and sustainable solutions to balance enhancing the environmental role of the park as well as delivering public needs and expectations (Ibrahim et al., 2020).

In Malaysia, decades of rapid development and urban growth significantly impact its cities, including Kuala Lumpur, which contributes to environmental change altering natural ecosystems into urban ecosystems with manicured green spaces, limiting their ecological role towards sustainability (Ibrahim et al., 2020). While recognising the social benefits for the urban community, maintaining the manicured landscape of urban parks and other urban green spaces requires substantial expenditure (Ibrahim, 2016; Lis et al., 2019). Public and

government awareness of the value of preserving urban greenery for environmental sustainability has increased in Malaysia (Hanisah et al., 2012), attempting to locate sustainable solutions to maintain urban green areas, particularly urban parks There is a potential to change the current manicured landscape into a naturalistic style to achieve this sustainable goal.

Manicured versus naturalistic landscape

Appreciation of the beauty of a landscape is a function of its natural character, suggesting that the more natural, the more beautiful the landscapes. Contemporary landscape architects and designers acknowledge the ESA by incorporating a naturalistic theme into the manicured urban landscape to bring back nature to the city (Farbod, 2015; Hitchmough, 2011). For instance, a study by Hwang (2015) in Singapore suggested the benefits of transforming manicured lawns into bio-diverse gardens could offer multiple environmental benefits. While promoting self-regenerating landscapes for addressing site conditions and biodiversity enhancement, it also potentially creates more visually pleasing and healing environments through a slow incremental approach with minimal resource input and cost (Ignatieva et al., 2017) for achieving a sustainable urban landscape.

In bringing nature experience, the visual appearance of the landscape plays a vital role in determining an appropriate landscape for urban parks that could enhance environmental sustainability (Gobster et al., 2007). Previous studies recognised a naturalistic landscape style as an environmentally sustainable approach for achieving this goal (Alizadeh & Hitchmough, 2019; Dunnett & Hitchmough, 2007; Farbod, 2015; Kingsbury, 2008). However, assessing public preference towards this ecological urban park landscape style is necessary to determine its successful implementation (Khew et al., 2014). Despite a high appreciation of nature, the perception of naturalistic landscapes in urban areas could vary from person to person (Hwang et al., 2019; Khew et al., 2014; Özgüner & Kendle, 2006). Those more familiar with manicured landscapes may perceive naturalistic design as untidy (Hwang et al., 2019; Özgüner & Kendle, 2006).

This study acknowledges the essential function of leisure and recreational activities in urban parks that received the public's interest and considerable attention in open space development (Zhang et al., 2013). To balance the ecological function and public expectations, the social and natural elements of urban park landscapes must be coordinated in a complementary manner (Zheng et al., 2019). Therefore, this paper examines public preference towards manicured versus the naturalistic landscape style in Kuala Lumpur's urban park, considering the aesthetic appearance, and functional and safety requirements to explore the possibility of changing its landscape design and management towards more ESA.

Naturalness Versus Neatness

The general public may oppose naturalistic landscape management due to a misconception that natural landscapes are unorganised and unkempt (Iverson Nassauer, 1995). Furthermore, the decision-making process in public parks and wilderness management frequently fails to capture public opinion appropriately (Chiapella et al., 2018). Considering public preference, integrating such a landscape style with the existing landscape design may be improved, providing better solutions and direction for park administration and landscape architects to design and manage urban park landscapes towards ESA.

Diversity

Public understanding, attitudes, and demands for urban biodiversity protection are considered low (Muratet et al., 2015) although it contributes to sustainable development goals and is a complete tool for assuring long-term environmental sustainability in urban areas (James et al., 2009). This natural component contributes to the preservation of urban quality of life. Residents' nearest attractions for outdoor enjoyment are urban green spaces, including urban parks. To lessen the sense of thermal discomfort, people seek out places with flora, water, and landscapes (Zhang et al., 2013). Even though green space improves the urban environment, rapid urban growth depletes cities' important natural resources, making them unsustainable. The World Health Organization (WHO) defines urban green space as undeveloped land in an urban context that is covered with flora and is a critical element that contributes to improved human health (Abu Kasim et al., 2018).

Many cities throughout the world are currently dealing with rising environmental challenges such as air pollution, dirty waterways, and habitat loss. Local governments have made major efforts to implement green policies, regulations, and projects in their cities to solve these concerns and rebuild urban ecosystems (Arifin & Nakagoshi, 2011). Singapore is a good example of the government's dedication to delivering a long-term development goal that balances the built environment and urban greenery (Tan, 2006).

Perceptions of Safety

Perceptions of safety are another significant aspect that influences the preference between manicured and naturalistic landscapes. For example, according to Lis et al. (2019), safety perception could make the public less preferred and avoid using green spaces associated with crime and danger (Farbod, 2015; Jorgensen et al., 2007). Unlike manicured landscapes, the naturalistic style creates a more ecologically friendly landscape that emulates nature. Without proper knowledge about this style, this condition could give the public the impression that this landscape is not well organised and lacks care (Nassauer, 2011). There is a potential to gain public preference towards ecological aesthetics (Gobster et al., 2007) with an understanding of the role and functions of this landscape (Gundersen et al., 2017), which can be achieved through cues to care approach (Nassauer, 1995). Public awareness about the environmental role of urban parks landscape would also influence their acceptance of such naturalistic landscape styles (Hwang et al., 2019; Ibrahim et al.).

Despite concerns about personal safety, many enjoy being surrounded by the natural environment. People gain immensely from urban forest vegetation in many ways, including aesthetic, environmental, and psychological benefits that have an impact on their sense of well-being (Jansson et al., 2013).

Individual perception of safety is a subjective experience that differs from actual safety and risk, necessitating a definitive response. In terms of safety, past studies have indicated that women prefer easily accessible landscapes because women are more concerned about their safety than males (Othman et al., 2015). Lack of security amplifies their negative viewpoints, resulting in poor utilisation and potential breaches. Several elements influence personal safety in urban design, including landscaping, monitoring and control capabilities, vegetation density, plant kinds, and maintenance (Jansson et al., 2013). As a result, it is critical to examine these elements across all urban park users to identify and relate their general perspectives to create better recommendations for transforming the current urban park landscape into a naturalistic landscape style.

Environmental Function

Uncontrolled urbanisation pollutes the urban environment and contributes to climate change, putting public health and well-being in danger, particularly in tropical places like Malaysia. Urban parks and green areas are vital resources for improving the mental and physical well-being of the city's residents Wolch et al (2014) by fulfilling their need for outdoor recreation (Jim & Chan, 2016; Sugiyama & Ward Thompson, 2008). Previous studies have demonstrated that healthy urban parks provide numerous benefits to urban ecology and sustainability over decades (Chiesura, 2004; Nath et al., 2018). According to ecological research, urban areas could be categorised as biodiversity wilderness areas, creating conservation concerns ranging from pure nature to urban green spaces (Politi Bertoncini et al., 2012).

The significance of urban green areas, particularly urban parks, in providing an ecological function is becoming increasingly important. As a complete approach to environmental sustainability, a sustainable urban green space with both ecological and aesthetic aspects provides numerous benefits that can improve the urban environment and living quality while also improving property values (Wang et al., 2019). In summary, while urban parks assist in integrating nature into the built environment for ecosystem services, they also increase public well-being and the quality of urban living.

Aesthetic Value

Aesthetic value is one factor that influences public approval of urban park settings. To achieve environmental sustainability, there is a tremendous opportunity to focus on researching different qualities of landscape designs to be blended into urban landscapes. In contrast, less emphasis has been placed on the perceptual qualities of various plant species (Hanisah et al., 2016). The implications of various vegetation species on perceived naturalness have yet to be thoroughly studied, particularly in urban parks. Jiang & Yuan (2017) imply that using visual signals aided in the evolution of different plant types' scenic aspects. Recognise that most people are unfamiliar with the qualities of natural landscapes, particularly their ecological benefits; additional public involvement is required to raise their knowledge and preference for naturalistic landscapes.

Materials and Methods

This study was conducted in three designated urban parks in Kuala Lumpur, Malaysia. A survey was conducted to explore public preference for the landscape of urban parks (refer to Table 1). The respondents were randomly selected among the park users of the selected parks who voluntarily agreed to participate in the survey. Approximately 300 respondents participated in the survey, aged between 16 to 70 years old. The selection of respondents from various age groups and racial groups ensures the data produced will be somewhat logical and valid to represent the views from the different demographic backgrounds on their preference towards creating a more naturalistic landscape in Kuala Lumpur's urban parks.

Table 1.1
Dependent and Independent variable of the study

Variables		**Measurement method**
Dependent variable	**Independent variables**	
Preference of urban park landscape	Demographic Background	Category deriving from the selection of photographs
	Level of Agreement on the landscape appearance - Naturalness - Neatness - Diversity	Evaluation of the respondent (1-5) in response to the question.
	Level of Agreement on the safety aspect	Evaluation of the respondent (1-5) in response to the question.
	Level of agreement on Environmental function and aesthetic value	Evaluation of the respondent (1-5) in response to the question.

Survey Questionnaire

This study adopted a photo survey approach for assessing public preference towards urban park landscapes using a well-established technique in landscape preference research. The questionnaire consists of a five-point Likert scale (from "prefer very much" =5 to "not prefer at all" =1) to assess the public's preferences towards landscape style at three selected Kuala Lumpur urban parks. The survey used 24 photos representing 2 categories, the existing manicure landscape scenes (12 photos) and the proposed changes towards naturalistic style (12 photos) at four (4) different areas of urban parks, namely (i) lawn area; (ii) shrubland; (iii) semi-woodland; and (iv) water-edge area, which served as visual stimuli in the study. The photos were selected from 400 initial pictures taken from the three selected urban parks in Kuala Lumpur during the scene selection process. The basis for assigning the two categories is to avoid bias among the respondents in selecting their preferred landscape scenes between the existing landscape and the proposed naturalistic style. The survey outcomes underwent analysis using the Statistical Package for Social Science (SPSS) software, which used descriptive statistics and paired-sample t-tests to determine Pearson's correlation coefficients for the variables, as well as ANOVA and linear regression to test the predictor variables' influence on the dependent variables.

Figure 1.1 photos representing the existing manicured landscape scenes (12 photos) and the proposed changes towards naturalistic style (12 photos) at four (4) different areas of urban parks, namely (i) lawn area; (ii) shrubland; (iii) semi-woodland; and (iv) water-edge area.

Figure 1.1

Existing manicured landscape scene and the proposed changes towards naturalistic style

Lawn	L1	L2	L3
Existing			
Treatment			

Shrubland	S1	S2	S3
Existing			
Treatment			

Semi-woodland	SW1	SW2	SW3
Existing			
Treatment			

Water-edge	WE1	WE2	WE3
Existing			
Treatment			

Data Analysis

The questionnaire data were analysed using the Statistical Package for Social Science version 21 (SPSS) according to the following procedures were as follows:

1. The data were examined for normality using the Skewness and Kurtosis tests. The data had a mostly normal distribution. The Cronbach's alpha coefficient was computed to ensure the evaluation data were reliable.
2. The mean of public preference and level of agreement were analysed to get the “average” of each question.
3. ANOVA was used to analyse the significance of the variable tested.

4. Using Pearson analysis, the correlations between the frequency (N) of public preference and public agreement in appearance, safety, function, and value were determined.

Demographic Characteristics

ANOVA and the T-test have been used to further compare the acceptability of the urban park environment among different demographic backgrounds. The public's preference for the urban park's landscape style is influenced by factors such as gender, education level, ethnicity and economic level. Malaysians' sociodemographic traits, specifically their gender, age, level of education, occupation, and proximity to the nearest urban park, significantly influenced their perceptions of ecological and sustainable challenges (Wey et al., 2022). Supported by Fortin & Cimon-Morin (2023) research suggests that younger individuals and those with higher education are more inclined to support sustainable preservation compared to other demographic groups. This is likely because higher education backgrounds make them more familiar with sustainability and environmental issues, which are increasingly covered in higher education courses (Franěk, 2023). This study acknowledges Kuala Lumpur urban parks were used by people from different cultural backgrounds, in ways that were specific to their culture and values (Aziz, 2012). There is a consensus that individual assessments of a landscape are influenced by this sociodemographic characteristic (López-Martínez, 2017). Furthermore, people with lower incomes are more vulnerable to climate-related risks because they have fewer resources available for adaptation (Ehsan et al., 2022).

Table 2.1
Public preference for urban park landscape compared to demographic

Preference	N	Mean	Std. Deviation	T-Test	Significant
Gender					
Male	121	3.70	0.64	-2.44	0.015
Female	137	3.89	0.59		
Age					
18 - 25 years	80	3.91	0.62	1.98	0.097
26 - 35 years	122	3.71	0.63		
36 - 45 years	35	3.85	0.63		
46 - 55 years	11	3.63	0.48		
> 55 years	10	4.05	0.47		
Ethnicity					
Malay	175	3.83	0.58	3.74	0.012
Chinese	65	3.63	0.71		
Indian	7	4.08	0.30		
Others	11	4.17	0.60		
Education Level					
Highschool and below	30	3.91	0.67	2.66	0.048
Pre-university	37	4.02	0.60		
Undergraduate	135	3.75	0.59		
Postgraduate	56	3.72	0.64		
Income status					
< RM 1000	85	4.00	0.62	3.57	0.007

RM 1001 - RM 3000	47	3.72	0.53
RM 3001 - RM 6000	67	3.71	0.64
RM 6001 -RM 9000	20	3.69	0.66

Results

Public preference for landscape style in Kuala Lumpur's Urban Parks based on evaluation of the photomontage stimulation

The average scores for individual image categories are shown in Table 2.2. Public acceptance ratings for the current and naturalistic design approaches were compared. The findings suggest the possibility of incorporating a naturalistic style treatment into the well-maintained surroundings of Kuala Lumpur urban parks. After careful comparison, the treatment scene (M=4.06, SD=0.77) is ranked lower than the present water edge scene (M=4.15, SD=0.65). Nonetheless, there is only a 0.09 mean difference in the water edge area between the treated and existing regions. It proves that the public would still accept treatment in the naturalistic landscape style. The shrubland ranks second, with a mean difference of 0.01 between the original scene (M=3.80, SD=0.71) and the treatment scene (M=3.79, SD=0.74).

Table 2.2
Mean rating of group categories of photographs

	Existing		**Treatment**	
Scene	**Mean**	**SD**	**Mean**	**SD**
Water Edge	4.15	0.65	4.06	0.77
Shrubland	3.80	0.71	3.79	0.74
Semi Woodland	3.63	0.79	3.78	0.80
Lawn	3.64	0.77	3.54	0.77

Note. The scale ranges from 1 to 5 (1 = not prefer at all, 5 = prefer very much)

Subsequently, the naturalistic landscape treatment scene (M=3.78, SD=0.80) for semi-woodland was 0.15 higher than the current scene (M=3.63, SD=0.79). The result indicates the extent of public support for converting the semi-woodland region into a naturalistic landscape design. reinforced by studies by Ode et al (2009a); Vand Mansvelt and Kuiper (1999), which demonstrate that the degree of succession is a measure of naturalness in connection to the conversion of agricultural land into a more semi-natural ecosystem through the growth of woodland and scrub. Though more people approve of the naturalistic landscape treatment at the water's edge than the present one, both landscape styles are still quite popular with the public. Meanwhile, the public prefers the naturalistic landscape style proposed to be implemented in the shrubland. Ultimately, with a difference of 0.1, the public prefers the current scene (M=3.64, SD=0.77) for the lawn area over the treatment scene (M=3.54, SD=0.77).

This finding suggests that an urban park in Kuala Lumpur may eventually embrace a naturalistic landscape design instead of its current one. This outcome is consistent with Nijnik & Mather (2008) research shows the benefits to the environment, economy, and population when the public supports policies that encourage tree planting, particularly when it comes to creating semi-wooded areas.

The factor that influences the public preference for urban park landscape style Landscape Appearance, Particularly The Aspect of Naturalness, Neatness, And Diversity

Table 2.3 presents the level of agreement with the urban park's landscape appearance based on naturalness, neatness, diversity, safety, environmental function, and aesthetic value. The finding demonstrates that the public level of agreement for the naturalness aspect of urban park landscapes (Mean= 4.30, SD=0.58) received the highest score, which supports Ode et al. (2009) claim that naturalness received the highest score as it is one of the important aspects primarily concerned in the landscape preference study. Neatness is one of the important aspects of landscape appearance for urban park landscapes, which coherent with the previous study that one of the most crucial elements in making a place appealing is neatness (Iverson Nassauer, 1995b).

The public generally agreed to bring nature into urban parks for significant environmental functions and aesthetic values that contribute to the ecosystem services of a city (Chiesura, 2004; Ibrahim et al., 2020) besides improving the landscape management of urban parks (Ibrahim et al., 2020). This indicates that the naturalistic landscape provides its own unique aesthetic value to urban parks. Although the public acknowledges the multiple benefits of environmental function by having a naturalistic landscape in an urban park, they do not agree with having diversity aspects in the urban park landscape regarding the feeling of discomfort with the presence of wildlife, concerning safety. According to (Lis et al., 2019), "the sense of danger associated with fear of crime is currently a common phenomenon in urban spaces, including parks" (p. 1). Based on the result, safety is a significantly important aspect to be considered in urban park landscape design for enhancing the safety perception of park visitors. These findings support the previous literature that the sense of safety in urban surroundings is important (Hashim et al., 2016). Thus, the safety aspect is an important requirement to be emphasised in the landscape design of these spaces, particularly to avoid a sense of danger or insecurity among the public.

Table 2.3
Level of agreement with the urban park's landscape appearance

Items	N	Mean	Std. Deviation
Naturalness	258	4.30	0.58
Neatness	258	4.28	0.56
Aesthetic value	258	4.24	0.61
Safety	258	4.22	0.61
Environmental function	258	4.06	0.58
Diversity	258	2.76	0.96
Valid N (listwise)	258		

Note. Landscape appearance based on naturalness, neatness, diversity, environmental function, and aesthetic value.

Relationship Between Public Preference for The Landscape of The Urban Park with Appearance Aspect

To explore the relationship between the public's preference for the urban park landscape and its appearance, correlation is used. Naturalness and neatness had significant values of 0.000 and 0.019, respectively, which are below 0.05, according to the data. In the meantime, diversity reveals that there is no meaningful correlation between public choice and the significant values of 0.54. The significant value of an enclosure is 0.008, which is less

than 0.05. Therefore, enclosure and public preference are significantly correlated. The results also reveal significant values of 0.000 for aesthetics and environmental function, which is less than 0.05. Consequently, the analysis's findings showed a strong correlation between the public's preference and attributes such as naturalness, neatness, safety, environmental function, and aesthetic value.

Table 2.4
Correlation between public preference of urban park landscape with appearance aspect

		Public Preference	Naturalness	Neatness	Diversity	Safety	Environmental function	Aesthetic value
Public Preference	Pearson Correlation	1	.438**	.146*	0.038	.165**	.335**	.345**
	Sig. (2-tailed)		0	0.019	0.54	0.008	0	0
	N	258	258	258	258	258	258	258
Naturalness	Pearson Correlation	.438**	1	.325**	.160**	.420**	.529**	.561**
	Sig. (2-tailed)	0		0	0.01	0	0	0
	N	258	258	258	258	258	258	258
Neatness	Pearson Correlation	.146*	.325**	1	-.266**	.463**	.270**	.239**
	Sig. (2-tailed)	0.019	0		0	0	0	0
	N	258	258	258	258	258	258	258
Diversity	Pearson Correlation	0.038	.160**	-.266**	1	-0.122	.198**	.149*
	Sig. (2-tailed)	0.54	0.01	0		0.051	0.001	0.016
	N	258	258	258	258	258	258	258
Safety	Pearson Correlation	.165**	.420**	.463**	-0.122	1	.329**	.347**
	Sig. (2-tailed)	0.008	0	0	0.051		0	0
	N	258	258	258	258	258	258	258
Environmental function	Pearson Correlation	.335**	.529**	.270**	.198**	.329**	1	.775**
	Sig. (2-tailed)	0	0	0	0.001	0		0
	N	258	258	258	258	258	258	258
Aesthetic value	Pearson Correlation	.345**	.561**	.239**	.149*	.347**	.775**	1

Sig. (2-tailed)	0	0	0	0.016	0	0	
N	258	258	258	258	258	258	258

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Public preference for urban park landscapes with appearance features is the basis for the entire sample, and the results indicate that the components account for 43.9% of the variance in public preference. The Adjusted R^2 (18.3%) is lower than the R^2 (19.3%). Naturalness, neatness, and diversity represent 19.3% of the public's preference; the remaining 80.7% point to other characteristics. For all independent variables, the overall regression relationship is $p<0.05$, as shown in ANOVA Table F (3,254) = 20.203, p=0.000. Consequently, the study model has demonstrated that the public's preference for urban park landscapes is significantly predicted by factors such as naturalness, neatness, and diversity. The significant values are 0.000, 0.896, and 0.560, according to Table 2.5. The result implies that there is a relationship between naturalness and public preference. Thus, while neatness and diversity did not significantly contribute to the model, naturalness did (B=0.476, $p<0.05$). According to this finding, the best indicator of public preference for naturalistic landscapes in urban parks is naturalness.

Table 2.5
Multiple regression results for appearance aspect

Model	**Unstandardised Coefficients**		**Standardised Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**β**		
(Constant)	1.852	0.351		5.276	0
Mean Naturalness	0.476	0.066	0.446	7.203	0
Mean Neatness	-0.009	0.07	-0.008	-0.131	0.896
Mean Diversity	-0.023	0.039	-0.035	-0.583	0.56
R^2	0.193				
Adj R^2	0.183				
SE	0.56				
$F_{3,254}$	20.203				

Predictors: naturalness, neatness, and diversity

Relationship Between Public Preference Towards the Landscape Of The Urban Park With Safety Aspect

Overall sample-based data indicates that variables may explain 16.5% of the variance in public preference. The Adjusted R^2 (2.3%) is lower than the R^2 (2.7%). The enclosure accounts for 2.7% of public preference, with 97.3% citing other criteria. ANOVA table 2.5, F (1,256) = 7.144, p=0.008, indicates that the independent variable's overall regression association is $p<0.05$. Consequently, the study model has demonstrated that enclosure has a major impact on people's preferences for urban park settings. Table 2.6's result shows a significant value of 0.008, indicating a relationship between enclosure and public preference. Enclosure thus affects public preference.

Table 2.6
Multiple regression results for the safety aspect

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	β		
(Constant)	3.098	0.265		11.692	0
Mean Enclosure	0.166	0.062	0.165	2.673	0.008
R^2	0.027				
Adj R^2	0.023				
SE	0.612				
$F_{1,256}$	7.144				

Predictors: enclosure

Relationship Between Public Preference Toward the Urban Park Landscape with The Function and Value

Based on public preference for environmental function and aesthetic value, the entire sample reveals that these factors contribute to 36.1% of the variance in public preference. As compared to the Adjusted R^2 (12.3%), the R^2 (13%) is higher. Aesthetic value and environmental function represent 13% of public preference; other considerations account for 87%. The ANOVA table (see table 2.7) indicates that the overall regression relationship for all independent variables is $p<0.05$ with $F(2,255) = 19.097$, $p=0.000$. Thus, the research model has demonstrated that aesthetic value and environmental function have a major impact on public preference. The coefficient test yielded significant values of 0.068 and 0.021, indicating a link between aesthetics and public preference for urban parks. The model's environmental function contributed less than 5% (B=0.181, p=0.07), but aesthetics contributed significantly (B=0.218, $p<0.05$). According to this finding, people's preference for naturalistic landscapes in urban parks may be most accurately predicted by aesthetics.

Table 2.7
Multiple regression results for Function and Value

Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	β		
(Constant)	2.139	0.271		7.881	0
Mean Environmental	0.181	0.099	0.169	1.832	0.068
Mean Aesthetic	0.218	0.094	0.214	2.314	0.021
R^2	0.13				
Adj R^2	0.123				
SE	0.58				
$F_{2,225}$	19.097				

Predictors: environmental function and aesthetic value

Discussion

The study evaluated the park user preference between the existing landscape and the proposed naturalistic design treatment at the four areas within the selected urban parks, namely the lawn area, shrubland, semi-woodland and the water-edge area. Generally, it can be said that several factors, such as the type of urban park and its purpose, influence the public's tolerance for both the existing landscape and naturalistic landscapes. The public preferred the semi-woodland area to have a naturalistic landscape, but they would also accept such landscape style at the water's edge, shrublands, and lawn areas provided certain recommendations were made to maintain the area's visual appeal.

Furthermore, the study evaluated the level of agreement on the landscape appearance, particularly on the aspect of naturalness, neatness and diversity; aspect of safety; and aspect of environmental function and aesthetic value. According to the findings, naturalistic landscapes in urban parks would generally be accepted by the public, if they were carefully planned and executed. It could be inferred that in the context of urban park landscapes, neatness and wildness are significant landscape features, and prior research confirms the general notion that people prefer clean environments (Zheng et al., 2011). To provide additional greenery to an urban area, the naturalistic landscape should be used, but it should be proportionate and placed strategically. While it is ideal for every urban park in the city to have a naturalistic landscape, this is not always the case. It has benefits and drawbacks that differ according to the location and park space allotted. Therefore, for each park to adopt a naturalistic landscape design, it must be well-organized and always maintain a neat and appropriate appearance. Otherwise, it will appear unkempt and poorly cared for.

In addition, to enhance safety feeling and comfort while enjoying the park, it is important to consider the safety aspect in designing its landscape. Creating a distinct space between people and wildlife, a realistic planting layout and composition are strongly advised. The present study corroborates earlier research indicating that the impact of plant design on female public perceptions of safety is associated with the critical aspect of safety perception in the urban setting (Hashim et al., 2016)

Subsequently, the naturalistic landscape design solution considers the different ecosystem services regarding environmental function. As such, additional thought must be given to the space's social purpose throughout implementation. According to public perception, an urban park's landscape should be maintained in a clean and tidy manner while also being environmentally friendly, regardless of its layout.

Recommendations

To enhance the visual value of the naturalistic landscapes, the study provides recommendations for improvement, such as adding colourful plant species to increase the variety of colour and appeal that comes from a diversity of flora, especially to semi-woodland and water edge locations. Having big canopy trees can provide shade for the public while enjoying recreational activities. Appropriate selection of plant palettes is essential to helps create a naturalistic landscape in urban environments. Likewise, the water feature in the park improves the general appearance of the area. Water plants like lotuses, or even better, water lilies, should be placed in this region.

The findings showed a correlation between the level of agreement regarding the appearance of the landscape and park users' preferences for urban park landscapes. Naturalness and neatness are the elements that influence public preference for naturalistic landscapes, with naturalness being the strongest predictor of public preference, according to

a comparison of public preference and the degree of agreement with the feature of landscape appearance. The enclosure plays a major role in the public's preference for naturalistic landscape styles, and safety is another important consideration that drives this decision. The public's preference for naturalistic landscape design is also influenced by environmental function and aesthetic value, with aesthetics being a key predictor of preference.

Conclusion

The current design of urban parks in Kuala Lumpur, Malaysia, aligns with the public's preference for conventional practices in managing urban park landscapes that require intensive maintenance that would incur high costs. The findings offer an insight into park user preferences, particularly in favour of transitioning towards a more environmentally sustainable approach. To guarantee that urban park management and landscape design practices toward greater ESA may be effectively implemented on the ground, it is essential to understand park users' preferences.

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Declaration

Ethical Approval

All the information obtained from the questionnaire form will be kept confidential and will be used for academic purposes only.

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Availability of Data and Materials

The data that support the findings of this study are available within the article and its supplementary materials.

Reference

Alizadeh, B., & Hitchmough, J. (2019). A review of urban landscape adaptation to the challenge of climate change. *International Journal of Climate Change Strategies and Management*, *11*(2), 178-194. https://doi.org/10.1108/IJCCSM-10-2017-0179

Colding, J., Gren, Å., & Barthel, S. (2020). The Incremental Demise of Urban Green Spaces. *Land*, *9*(5). https://doi.org/10.3390/land9050162

Collins, C. M. T., Cook-Monie, I., & Raum, S. (2019). What do people know? Ecosystem services, public perception and sustainable management of urban park trees in London, U.K. *Urban Forestry & Urban Greening*, *43*, 126362. https://doi.org/https://doi.org/10.1016/j.ufug.2019.06.005

Depietri, Y., & McPhearson, T. (2017). Integrating the Grey, Green, and Blue in Cities: Nature-Based Solutions for Climate Change Adaptation and Risk Reduction. In N. Kabisch, H. Korn, J. Stadler, & A. Bonn (Eds.), *Nature-Based Solutions to Climate Change Adaptation in Urban Areas: Linkages between Science, Policy and Practice* (pp. 91-109). Springer International Publishing. https://doi.org/10.1007/978-3-319-56091-5_6

Dunnett, N., & Hitchmough, J. (2007). *The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban Planting*. Taylor & Francis.

Esbah, H., Maktav, D., Atatanir, L., & Sunar, F. (2012). Understanding urban growth patterns: a landscape ecology point of view.

Farbod, S. (2015). A Procedure for Selecting Naturalistic Images Based on Appleton's Theory. *International Journal of Social Science and Humanity*, *5*, 793-797. https://doi.org/10.7763/IJSSH.2015.V5.558

Gobster, P., Nassauer, J., Daniel, T., & Fry, G. (2007). The shared landscape: what does aesthetics have to do with ecology? *Landscape Ecology*, *22*(7), 959-972. https://doi.org/10.1007/s10980-007-9110-x

Gundersen, V., Stange, E. E., Kaltenborn, B. P., & Vistad, O. I. (2017). Public visual preferences for dead wood in natural boreal forests: The effects of added information. *Landscape and Urban Planning*, *158*, 12-24. https://doi.org/https://doi.org/10.1016/j.landurbplan.2016.09.020

Hanisah, M. H. N., Hitchmough, J. D., & Muda, A. (2012). The Perception of Kuala Lumpur Publics' on Tree Retention and Urban Development. *Procedia - Social and Behavioral Sciences*, *49*, 215-226. https://doi.org/https://doi.org/10.1016/j.sbspro.2012.07.020

Hitchmough, J. (2011). Exotic plants and plantings in the sustainable, designed urban landscape. *Landscape and Urban Planning*, *100*(4), 380-382. https://doi.org/10.1016/j.landurbplan.2011.02.017

Hwang, Y. H. (2015). Spontaneous Vegetation Transforming Manicured Lawns Into Selectively Maintained Biodiverse Gardens. In (pp. P101-108).

Hwang, Y. H., Yue, Z. E. J., Ling, S. K., & Tan, H. H. V. (2019). It's ok to be wilder: Preference for natural growth in urban green spaces in a tropical city. *Urban Forestry & Urban Greening*, *38*, 165-176. https://doi.org/https://doi.org/10.1016/j.ufug.2018.12.005

Idilfitri, S., & Mohamad, N. H. N. (2012). Role of Ornamental Vegetation for Birds' Habitats in Urban Parks: Case Study FRIM, Malaysia. *Procedia - Social and Behavioral Sciences*, *68*, 894–909. https://doi.org/10.1016/j.sbspro.2012.12.275

Idilfitri, S., Rodzi, N. I. M., Mohamad, N. H. N., & Sulaiman, S. (2015). Public Perception of the Cultural Perspective towards Sustainable Development. *Procedia - Social and Behavioral Sciences*, *168*, 191–203. https://doi.org/10.1016/j.sbspro.2014.10.224

Ibrahim, R., Clayden, A., & Cameron, R. (2020). Tropical urban parks in Kuala Lumpur, Malaysia: Challenging the attitudes of park management teams towards a more environmentally sustainable approach. *Urban Forestry & Urban Greening*, 126605. https://doi.org/https://doi.org/10.1016/j.ufug.2020.126605

Ibrahim, R., Clayden, A., & Hitchmough, J. (2014). Adaptation of tropical urban park management in Kuala Lumpur, Malaysia towards delivering ecologically sustainable landscape practice: Comparing benefits and challenges.

Ibrahim, R. (2016). *Towards a sustainable landscape of urban parks in Kuala Lumpur, Malaysia: a study from a management perspective* [Thesis (PhD), University of Sheffield]. http://etheses.whiterose.ac.uk/13641/

Ignatieva, M., Eriksson, F., Eriksson, T., Berg, P., & Hedblom, M. (2017). The lawn as a social and cultural phenomenon in Sweden. *Urban Forestry & Urban Greening*, *21*, 213-223. https://doi.org/https://doi.org/10.1016/j.ufug.2016.12.006

Jorgensen, A., Hitchmough, J., & Dunnett, N. (2007). Woodland as a setting for housing-appreciation and fear and the contribution to residential satisfaction and place identity

in Warrington New Town, UK. *Landscape and Urban Planning*, *79*(3–4), 273-287. https://doi.org/http://dx.doi.org/10.1016/j.landurbplan.2006.02.015

Khew, J. Y. T., Yokohari, M., & Tanaka, T. (2014). Public Perceptions of Nature and Landscape Preference in Singapore. *Human Ecology*, *42*(6), 979-988.

Kingsbury, N. (2008). Contemporary Overview of Naturalistic Planting Design. In N. Dunnett & J. Hitchmough (Eds.), *The Dynamic Landscape* (pp. 58). Taylor & Francis.

Konijnendijk, C. C., Annerstedt, M., Nielsen, A. B., & Sreetheran, M. (2013). *Benefits of Urban Parks*. T. I. F. o. P. a. R. A. IFPRA. http://www.ifpra.org/images/park-benefits.pdf

Lis, A., Pardela, Ł., & Iwankowski, P. (2019). Impact of Vegetation on Perceived Safety and Preference in City Parks. *Sustainability*, *11*(22). https://doi.org/10.3390/su11226324

Muratet, A., Pellegrini, P., Dufour, A.-B., Arrif, T., & Chiron, F. (2015). Perception and knowledge of plant diversity among urban park users. *Landscape and Urban Planning*, *137*, 95-106. https://doi.org/https://doi.org/10.1016/j.landurbplan.2015.01.003

Nassauer, J. I. (1995). messy ecosystems, orderly frames. *landscape journal*(15).

Nassauer, J. I. (2011). Care and stewardship: From home to planet. *Landscape and Urban Planning*, *100*(4), 321-323. https://doi.org/http://dx.doi.org/10.1016/j.landurbplan.2011.02.022

Nath, T. K., Zhe Han, S. S., & Lechner, A. M. (2018). Urban green space and well-being in Kuala Lumpur, Malaysia. *Urban Forestry & Urban Greening*, *36*, 34-41. https://doi.org/https://doi.org/10.1016/j.ufug.2018.09.013

Nieuwenhuijsen, M. J. (2021). New urban models for more sustainable, liveable and healthier cities post covid19; reducing air pollution, noise and heat island effects and increasing green space and physical activity. *Environment International*, *157*, 106850. https://doi.org/https://doi.org/10.1016/j.envint.2021.106850

Nijnik, M., & Mather, A. (2008). Analysing public preferences concerning woodland development in rural landscapes in Scotland. *Landscape and Urban Planning*, *86*(3–4), 267–275. https://doi.org/10.1016/j.landurbplan.2008.03.007

Politi Bertoncini, A., Machon, N., Pavoine, S., & Muratet, A. (2012). Local gardening practices shape urban lawn floristic communities. *Landscape and Urban Planning*, *105*(1–2), 53-61. https://doi.org/10.1016/j.landurbplan.2011.11.017

Wu, Z., Chen, R., Meadows, M. E., Sengupta, D., & Xu, D. (2019). Changing urban green spaces in Shanghai: trends, drivers and policy implications. *Land Use Policy*, *87*, 104080. https://doi.org/https://doi.org/10.1016/j.landusepol.2019.104080

Özgüner, H., & Kendle, A. D. (2006). Public attitudes towards naturalistic versus designed landscapes in the city of Sheffield (UK). *Landscape and Urban Planning*, *74*(2), 139-157. https://doi.org/10.1016/j.landurbplan.2004.10.003

Zhang, H., Chen, B., Sun, Z., & Bao, Z. (2013). Landscape perception and recreation needs in urban green space in Fuyang, Hangzhou, China. *Urban Forestry and Urban Greening*, *12*(1), 44–52. https://doi.org/10.1016/j.ufug.2012.11.001