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HUMAN INTERACTION IN URBAN SPACES: A QUANTITATIVE ANALYSIS IN URBAN PARK, SHAH ALAM CITY, SELANGOR

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Abstract

This paper aims to provide valuable insight of the various dimensions of human needs' towards open spaces. This study employed a mixed method research design involving both quantitative and qualitative methods that were utilised to identify and evaluate the human-human interaction and human-nature interaction in the area of study. Primary data was gathered by using questionnaire survey that was administered to 861 respondents who were visitors to public parks. The finding of this study is intended to show the main domains that reflect human needs' toward open spaces together with perceived benefits to the open space users.

Keywords: human-human interaction, human-nature interaction, open spaces.

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INTRODUCTION

Historically, mankind has created open spaces for various reasons. Thus, open spaces are often viewed as the products of a complex society with different societal needs, interest and aesthetics, which evolved over time. Humans' relationship with open spaces is becoming increasingly complex due to the heterogeneous cultural and demographic dimensions of socio-economic, gender, type of activities and open space facilities. Hence, the growing scarcity of open spaces is of concern to the local authorities as there is a drastic reduction in good quality open spaces left in the urban areas.

The objectives of this paper are to identify the motives of urban dwellers in visiting open spaces, and to examine the human-human interaction and human-nature interaction in open spaces. This study employed a mixed method research design involving both quantitative and qualitative methods that were utilised to identify and investigate the human-human interaction and human-nature interaction in the area of study. Primary data was gathered by using questionnaire survey that was administered to 861 respondents who were visitors to public parks in Shah Alam. The findings of this study show the main domains that reflect human needs towards open spaces. It is hoped that the findings of this study would assist landscape planners and designers in understanding the preferred conducive composition and configuration of human needs towards open spaces.

HUMAN INTERACTION IN OPEN SPACES

Open space act as a positive channel for people engagement and interaction (Omar, Illia & Hanita, 2015). However, people value open space differently. According to Mutiara & Isami (2012), urbanites prefer their open spaces with a variety of facilities for recreational activities instead of only attractive natural areas. Meanwhile, Machabee, Oleson and Kinzig (2004) claim that socio-economic factor also determine the usage of open space, as residents of high-income neighbourhood were found to use their open spaces more than residents in the middle or low-income neighbourhoods.

According to Rasidi, Jamirsah and Said (2012), there is an increasing trend of research on the significance of open spaces. The development over the recent decades has resulted in the loss of forest, farm, forest fringe and other open space lands that somehow contributed to urban residents' quality of life. The growing scarcity of open space is of concern for local authorities since there is an alarming reduction in quality open spaces for urban community's recreational needs (Omar, Illia & Hanita, 2015). Rasidi, Jamirsah and Said (2012) emphasise on the need to maintain quality open spaces as Malaysia is in the quest of providing more urban and suburban landscapes. Hence, several questions are raised in this paper, which are: Why do people need open spaces? What is the type of

interaction they get from visiting open spaces? What are the benefits they get and do these benefits affect their quality of life?

RESEARCH METHODOLOGY

Theoretical Framework

Matsuoka and Kaplan (2008) identify major themes that directly linked to the open spaces including human-nature interaction and human-human interaction. The domains then applied in the study as the general guidelines. Under the nature needs, three variables were measured: contact with nature, aesthetic preference, and recreation or play. As for the human needs, the variables measured were social interaction, citizen participation and the sense of community. Table 1 below shows the framework.

Table 1 Theoretical Framework of Human Interaction in Open Spaces

Author	Nature needs			Human needs			Primary Data
	Contact with nature	Aesthetic Preference	Recreation / play	Social interactio privacy	Citizen Participation	Sense of Community	Quantitative/ Qualitative Data
Austin (2004)	●			●		●	Qualitative
Chiesura (2004)	●		●	●	●		Quantitative
Gobster (2001)	●	●	●		●	●	Both
Oguz (2000)	●	●	●	●			Qualitative
Ozguner & Kendle (2006)	●	●		●			Quantitative
Abu-Ghazzeh (1996)	●				●	●	Qualitative
Crow et.al (2006)	●	●	●	●			Quantitative
Dokmeci & Berkoz (2000)	●	●		●			Quantitative
Hull et.al (1994)	●					●	Qualitative
Lucy & Phillips (1997)	●					●	Qualitative
Vogt & Marans (2004)	●	●	●	●			Qualitative
Herrington & Studtman (1998)	●			●			Qualitative
Coles & Bussey (2000)	●			●	●		Both
Simson (2000)	●	●				●	Qualitative
Yuen & Hien (2005)	●	●	●	●			Qualitative

Source: Matsuoka & Kaplan (2008)

Variables Measured

This research explores multi-dimensional human needs in open spaces and the perceived benefits from the interactions towards the area. The design of the spatial configuration could serve as a platform for human-nature interaction or human-human interaction. In order to comprehend design qualities that encourages interactions, it is recommended to measure the open spaces properties (i.e. green quality, green setting, accessibility, facilities and amenities) and interactions (human-nature interaction and human-human interaction) of the open space through documented responses. The unit of analysis is the various range of age group of the open spaces of Zone A in Shah Alam, Selangor. The approach in dividing the variables into two major categories was for the purpose of systematic data collection and to gauge how daily usage pattern of open spaces relate to the interactions.

Methods of Data Collection

A total of 1,000 of survey questionnaires were distributed within the various open spaces in Zone A, Shah Alam, Selangor. Questionnaires were distributed randomly regardless the users' age, race and ethnicity. However, only 861 were completed by respondents. In this survey, respondents were provided with a survey form with subsections to determine their background, such as gender, income, companionship, mode of transportation to open space, frequency of visit and time spend per visit. Respondents also were asked their main purpose of visiting open space. This were divided into two subsections: the human-nature interaction and the human-human interaction.

Study Area

The selected study area is Zone A, Shah Alam, Selangor Darul Ehsan, Malaysia. Table 2 below shows the ratio and percentage of the survey respondents.

Table 2 Sample size for each open space

Study Area	Size (hectares)	Percentage of size	Sample Size
Taman Tasik Shah Alam	43.0	66.3	428
Section 7	9.89	15.2	134
Section 18	6.0	9.3	149
Section 8 Playground	4.0	6.2	100
Section 4	2.0	3.0	50
Total	64.89	100	861

Development of the Instruments and Procedures

The research instrument was developed based on literature analysis as well as the items tested on multi-dimensional human needs. Various useable items from human needs pattern studies were integrated to develop further the methods. Every measurement were structured using 5-level Likert Scale that were 1: Strongly Disagree; 2: Disagree; 3: Neutral, 4: Agree and 5: Strongly Agree.

RESULTS AND FINDINGS

The data from survey questionnaires were coded into SPSS software for statistical analyses. The main focused of the analyses was to understand the relationship of human-human interactions and human-nature interactions that took place in the open space area. Demographic attributes such as gender, race, age group and home distance to open space were also considered. The descriptive analysis in Table 3 provides an overall analysis of the respondents profile in the study area.

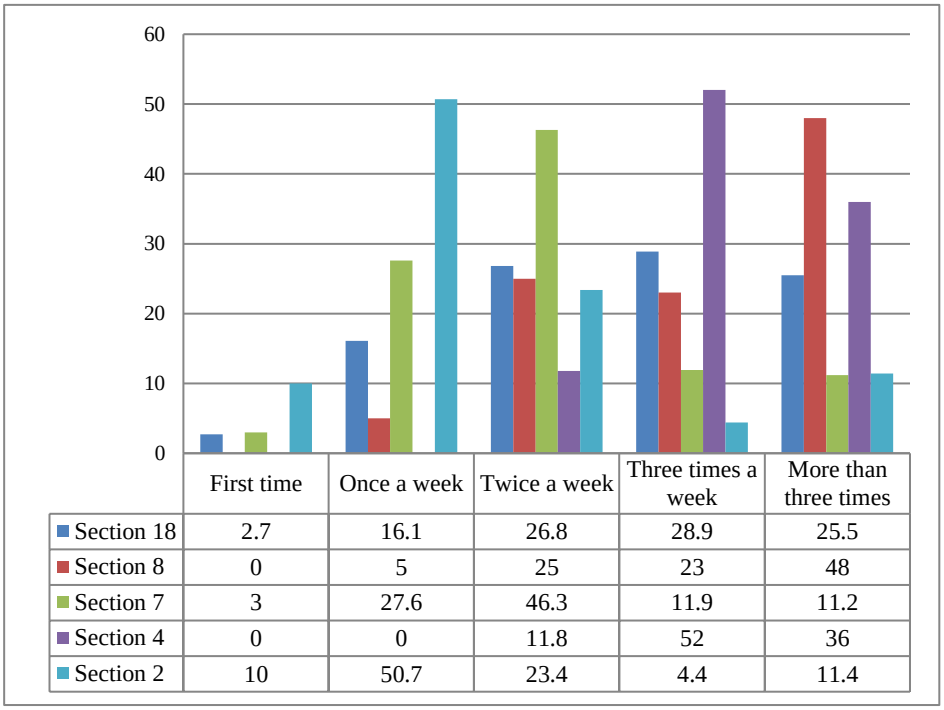
Table 3 Overall Descriptive Analysis on Profile of Respondents

Descriptive	Section 18		Section 8		Section 7		Section 4		Section 2	
Analysis	N	%	N	%	N	%	N	%	N	%
Gender										
Male	73	49.0	46	46.0	62	46.3	15	29.4	192	44.9
Female	76	51.0	54	54.0	72	53.7	35	68.6	236	55.1
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Age Group										
13-19	22	14.8	25	25.0	11	8.2	14	27.5	71	16.6
20-50	85	57.0	44	44.0	110	82.1	28	54.9	331	77.3
50-60	37	24.8	26	26.0	12	9.0	8	15.7	22	5.1
> 60	5	3.4	5	5.0	1	0.7	0	0	4	0.9
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Marital Status										
Single	43	28.9	25	25.0	99	73.9	14	27.5	264	61.7
Married	103	69.1	71	71.0	30	22.4	36	70.6	161	37.6
Divorce	3	2.0	4	4.0	5	3.7	0	0	2	0.5
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Race										
Malay	135	90.6	99	99.0	118	88.1	50	98.0	396	92.5
Chinese	7	4.7	0	0	6	4.5	0	0	13	3.0
Indian	6	4.0	1	1.0	9	6.7	0	0	17	4.0
others	1	0.7	0	0	1	0.7	0	0	2	0.5
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Types of Job										
Government	72	48.3	52	52.0	23	17.2	33	64.7	74	17.3
Private	34	22.8	28	28.0	24	17.9	3	5.9	101	23.6
Student	34	22.8	20	20.0	84	62.7	13	25.5	222	51.9
Others	9	6.0	0	0	3	2.2	1	2.0	31	7.2
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Neighbourhood Residents										
Yes	108	72.5	37	37.0	110	82.1	25	49.0	180	42.1
No	41	27.5	63	63.0	24	17.9	25	49.0	248	57.9
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Origin										
Home	121	81.2	79	79.0	111	82.8	42	82.4	272	63.6
College/School	18	12.1	7	7.0	13	9.7	1	2.0	112	26.2
Office	3	2.0	14	14.0	9	6.7	0	0	23	5.4
Others	7	4.7	0	0	1	0.7	7	13.7	21	4.9

Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Distance										
< 1km	44	29.5	3	3.0	43	32.1	4	7.8	43	10.0
1-2km	72	48.3	62	62.0	51	38.1	37	72.5	100	23.4
2-5km	26	17.4	34	34.0	30	22.4	9	17.6	133	31.1
> 5km	7	4.7	1	1.0	10	7.5	0	0	152	35.5
Total	149	100.0	100	100.0	134	100.0	50	98.0	428	100.0
Mode of Transportation										
On Foot	110	73	43	43.0	23	17.2	16	31.4	122	28.5
Public	7	4.7	0	0	3	2.2	1	2.0	19	4.4
Motorcycle	8	5.4	3	3.0	69	51.5	3	5.9	86	20.1
Car	22	14	51	51.0	39	29.1	30	58.8	201	47.0
Others	2	1.3	3	3.0	0	0	0	0	0	0
Total	149	100	100	100.0	134	100.0	50	98.0	428	100.0

Frequency and Purpose of Visits

Figure 1 shows the result of total percentage of visit frequency of the respondents to the open spaces per week. Meanwhile, Figure 2 shows the respondents' purpose of visiting the open spaces.



	First time	Once a week	Twice a week	Three times a week	More than three times
Section 18	2.7	16.1	26.8	28.9	25.5
Section 8	0	5	25	23	48
Section 7	3	27.6	46.3	11.9	11.2
Section 4	0	0	11.8	52	36
Section 2	10	50.7	23.4	4.4	11.4

Figure 1 Total Percentage of Visit Frequency

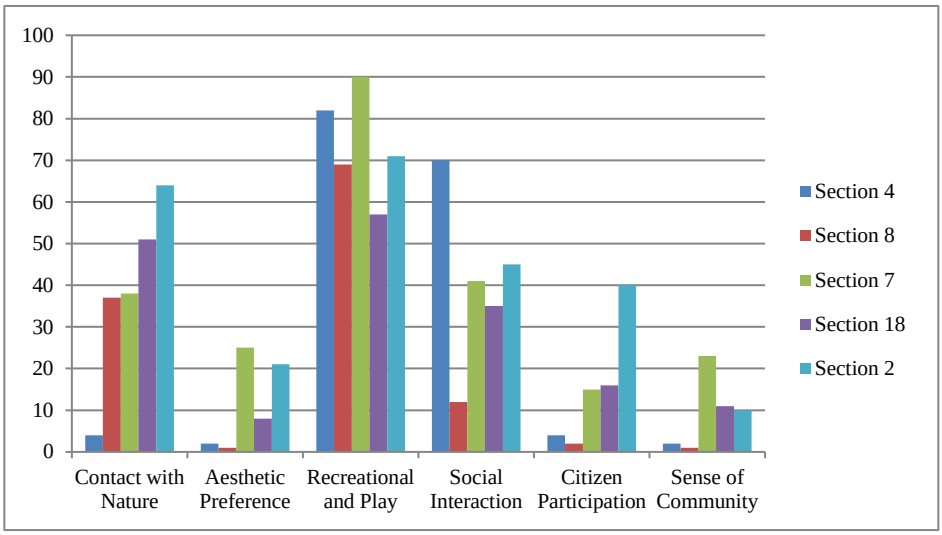


Figure 2 Purpose of Visiting Open Spaces

Human-Nature Interaction

To explore the human-nature interactions that respondents experienced in the open spaces, the questionnaire were divided into three parts that were contact with nature, aesthetic preference and recreational play. Table 4 below shows the overall results of human-nature interaction.

Table 4 Overall Analysis of Human-Nature Interaction

Overall Findings	Study Areas									
	Section 18		Section 8		Section 7		Section 4		Section 2	
	p-value		p-value		p-value		p-value		p-value	
Contact with Nature										
Unity with nature	0.0126	√	0.3443	X	0.1783	X	0.1569	X	0.2440	X
Unity with my self	0.2048	X	0.0731	X	0.0765	X	0.7860	X	0.1802	X
Freedom	0.0024	√	0.0569	X	0.1990	X	0.7138	X	0.2356	X
Recreational Satisfaction	0.6356	X	0.0985	X	0.0412	√	0.7886	X	0.1726	X
Adventure	0.1728	X	0.3911	X	0.0095	√	0.0588	X	0.7030	X
Happiness	0.4380	X	0.0779	X	0.0306	√	0.6805	X	0.3928	X
I think open space is important part of the city.	0.4594	X	0.0055	√	0.2102	X	0.2295	X	0.6561	X
Aesthetic Preference										
Unity with nature	0.1369	X	0.6109	X	0.0807	X	0.7747	X	0.9044	X
Unity with my self	0.0377	√	0.7310	X	0.0155	√	0.8888	X	0.1004	X
Freedom	0.1750	X	0.8179	X	0.0254	√	0.2529	X	0.1971	X
Recreational Satisfaction	0.1125	X	0.5780	X	0.0050	√	0.5740	X	0.2315	X
Adventure	0.3463	X	0.2680	X	0.0007	√	0.7260	X	0.8400	X
Happiness	0.0267	√	0.5099	X	0.0107	√	0.3293	X	0.8873	X

I think open space is important part of the city.	0.7971	X	0.6512	X	0.2499	X	0.6006	X	0.6193	X
Recreation and Play										
Unity with nature	0.4405	X	0.1579	X	0.0002	√	0.2953	X	0.0091	√
Unity with my self	0.5530	X	0.0857	X	0.0197	√	0.1181	X	0.0087	√
Freedom	0.6048	X	0.0886	X	0.0028	√	0.2575	X	0.0649	X
Recreational Satisfaction	0.9955	X	0.0492	√	0.0001	√	0.3626	X	0.0351	√
Adventure	0.6145	X	0.6607	X	0.0035	√	0.1913	X	0.1434	X
Happiness	0.4991	X	0.1774	X	0.0000	√	0.6294	X	0.0634	X
I think open space is important part of the city.	0.4553	X	0.0605	X	0.0001	√	0.1197	X	0.1779	X

√ : Null Hypothesis is rejected. There is significant relationship (p-value <0.0.5)
X : Null hypothesis is not rejected. There is no relationship (p-value > 0.05)

Human-Human Interaction

To determine the human-human interaction that the respondents experienced in the open spaces, the questionnaire were divided into three parts that were social interaction, citizen participation and a sense of community towards the open spaces. Table 5 below shows the overall results.

Table 5 Overall Analysis of Human-Human Interaction

Overall Findings	Study Areas									
	Section 18		Section 8		Section 7		Section 4		Section 2	
	p-value		p-value		p-value		p-value		p-value	
Social Interaction										
Unity with nature	0.1277	X	0.2097	X	0.6241	X	0.0149	√	0.0084	√
Unity with my self	0.2179	X	0.6136	X	0.6973	X	0.4781	X	0.0117	√
Freedom	0.1658	X	0.6695	X	0.6568	X	0.4208	X	0.2127	X
Recreational Satisfaction	0.4434	X	0.0908	X	0.8026	X	0.7859	X	0.1018	X
Adventure	0.2254	X	0.4801	X	0.8822	X	0.2625	X	0.2125	X
Happiness	0.0373	√	0.7493	X	0.7761	X	0.7512	X	0.0286	√
I think open space is important part of the city.	0.1206	X	0.4831	X	0.5874	X	0.1931	X	0.1395	X
Citizen Participation										
Unity with nature	0.7147	X	0.9540	X	0.0893	X	0.1569	X	0.0176	√
Unity with my self	0.7712	X	0.0993	X	0.0977	X	0.3442	X	0.0089	√
Freedom	0.4831	X	0.9287	X	0.1303	X	0.5347	X	0.0018	√
Recreational Satisfaction	0.2674	X	0.3303	X	0.8605	X	0.7886	X	0.0006	√
Adventure	0.9455	X	0.8981	X	0.5659	X	0.5487	X	0.0529	X
Happiness	0.6462	X	0.2857	X	0.1068	X	0.8503	X	0.0056	√
I think open space is important part of the city.	0.0864	X	0.0881	X	0.0868	X	0.8793	X	0.0023	√
Sense of Community										
Unity with nature	0.4535	X	0.0099	√	0.0826	X	0.0124	√	0.2132	X
Unity with my self	0.2936	X	0.0044	√	0.1102	X	0.8888	X	0.4400	X
Freedom	0.1800	X	0.8179	X	0.1609	X	0.7361	X	0.1796	X

Recreational Satisfaction	0.0385	√	0.5780	X	0.3750	X	0.3941	X	0.0803	X
Adventure	0.9776	X	0.6757	X	0.1932	X	0.0016	√	0.0882	X
Happiness	0.8554	X	0.5380	X	0.0831	X	0.6688	X	0.2955	X
I think open space is important part of the city.	0.5434	X	0.6512	X	0.0573	X	0.6006	X	0.6786	X

√ : Null Hypothesis is rejected. There is significant relationship (p-value <0.0.5)
X : Null hypothesis is not rejected. There is no relationship (p-value > 0.05)

Perceived Benefits of Open Spaces

For the perceived benefits in relation to the open spaces, the variables that represent the items by overall perception of human-human interaction, overall perception of human-nature interaction and average perceived benefits were created by using the regression model (Figure 3) to test whether these variables can significantly affect the perceived benefits. The results are shown in Table 6.

$$Y = \beta_{0+}\beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where,
Y = Perceived Benefit
X_1 = Human-nature Interaction
X_2 = Human-human Interaction
ε = error

Figure 3 The Proposed Regression Model

Table 6 Overall Analysis for the Proposed Model of Perceived Benefits

Model		Unstandardized Coefficients		Standardized Coefficients	Sig.	Dependent Variable: Perceived Benefit			Overall Result
		B	Std. Error	Beta		R-square	F-statistics	p-value	
Section 18									
1	(Constant)	2.685	.334		.000	0.059	4.004	0.021	
	Human-nature	.148	.075	.172	.051				X
	Human-human	.106	.065	.142	.108				X
Section 8									
1	(Constant)	2.162	.426		.000	0.18	10.444	0	
	Human-nature	.044	.091	.045	.634				X
	Human-human	.360	.083	.412	.000				√
Section 7									
1	(Constant)	1.572	.467		.001	0.206	15.685	0	
	Human-nature	.064	.129	.049	.619				X
	Human-human	.558	.130	.424	.000				√

Section 4									
1	(Constant)	3.240	.473		.000	0.04	0.927	0.403	
	Human-nature	.105	.105	.159	.321				X
	Human-human	.054	.117	.073	.650				X
Section 2									
1	(Constant)	1.262	.221		.000	0.301	56.474	0.000	
	Human-nature	.418	.065	.383	.000				√
	Human-human	.222	.054	.246	.000				√

CONCLUSION

In conclusion, this study has shown that human interactions are important to the open spaces as both elements respond well to each other. Apart from that, this study has also indicated that nature and human interactions needs elements of open spaces such as the green spaces, water elements and physical attributes to enhance the interactions between human-human and human-nature.

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REFERENCES

Machabee, L. G., Oleson, J. J., & Kinzig, A. P. (2005). Neighborhood parks uses by Phoenix residents: an exploration of socio demographic differences. In D. Harmon (Ed.), *People, Places, and Parks: Proceedings of the 2005 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites*. Hancock, Michigan: The George Wright Society.

Matsuoka, R. H., & Kaplan, R. (2008). People needs in the urban landscape : Analysis of Landscape and Urban Planning contributions. *Landscape and Urban Planning*, 84(1), 7-19. doi: 10.1016/j.landurbplan.2007.09.009

Mutiara, S., & Isami, K. (2012). Characteristic of public small park usage in Asia Pacific countries: case study in Jakarta and Yokohama City. *Procedia - Social and Behavioral Sciences*, 35, 412-419. doi:10.1016/j.sbspro.2012.02.106

Omar, D., Illia, F., & Hanita, N. (2015). Human interaction in open spaces. *Procedia - Social and Behavioral Sciences*, 201, 352-359. Doi: 10.1016/j.sbspro.2015.08.186

Rasidi, M. H., Jamirsah, N., & Said, I. (2012). Urban green space design affects urban residents' social interaction. *Procedia - Social and Behavioral Sciences*, 68, 464–480. doi:10.1016/j.sbspro.2012.12.242