Human Interaction Theory for Sustainable City

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Abstract. In relation to open spaces, Malaysia has received very little attention from researchers, unlike other countries where many studies have explored how human needs are fulfilled by urban open spaces. It is strongly believed that aspects such as the amount of urban open spaces per inhabitant, public parks and recreational areas are often mentioned as vital factors to make the city livable, pleasant and attractive for its citizens. This paper is undertaken to fill the knowledge gap of how human interacts in the urban open spaces that will then be developed as among the indicators for city sustainability. The objectives of this paper are to identify the human-nature and human-human interactions, at the same time identify the perceived benefits from physical, social and natural interactions towards open spaces. The expected outcome of this study is, it will help to emphasize the importance of citizen participation towards the open spaces and how it affects the level of sustainability. Furthermore, it will help in improving urban planning strategies and policy decision for the sustainability of the city.

1. Introduction

Currently, urban open spaces are emerging as one of the most important spaces in the urban fabric. They are multi-purpose public spaces in the city that offer social, economic, and environmental benefits in the field of landscape and built environment. They help to enhance the image of the city and improve the quality of urban life. Hence, there is a various theory that relates to the multi-dimensional human interaction in the open spaces. Chiesura (2004) claimed that the major function of open space is to satisfy people’s recreational need. However, it can be seen that urban open spaces provide more than just recreational satisfaction. Arifin (2005) stated that urban open spaces with plant represent natural contact with human as it acts as a production for oxygen, controlling the surrounding system and also the soil water. Moreover, the natural landscape in the open spaces can sometimes play a key role in promoting social interaction (Oguz, 2000). Hence, urban open spaces might have different usage and purposes towards different people in the areas.

According to Mutiara & Isami, (2012) people’s involvement and interaction in the urban open spaces can enhance the sense of belonging among people and at the same time increase the degree of neighbourhood attachment. However, a different hierarchy of open spaces might offer different purposes and interactions among the users. As time has evolved, and the function of urban open spaces might differ from time to time, it can be seen that there are several types of open spaces offer different types of human interaction. The typology of open spaces is basically characterized by the population, the size of the open space and also the facilities provided for each open spaces. Hence, this paper is undertaken to fill the knowledge gap of how human interacts in the urban open spaces that will then be developed as among the indicators for city sustainability. The objectives of this paper are to identify the human-nature and human-human interactions, at the same time identify the perceived benefits from physical, social and natural interactions towards open spaces.

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2. Sustainable City
Sustainable city can be defined as a city that is able to provide the basic needs of city inhabitants such as infrastructure, civic amenities, health and medical care, housing, education, transportation, employment, good governance and ensure the populations needs are met benefiting all sectors of society (Shamsuddin & Azmizam, 2013). According to Marzukhi, Karim, & Latfi (2012), sustainable city is also vital in controlling the development of a town based on the quantity and quality of infrastructure and facilities are sufficient to avoid other problems, for example lack of housing in urban areas that will cause squatter settlements. Understanding the dimensions of the sustainable city is a complex issue. Care needs to be exercised over the content within which the cities exist, their cultural background and regional and national differences. There will be significant differences in different parts of the world of the interpretation of the sustainable city. However there are common underlying and enduring themes that appear to inform both the debate and claims for urban forms that promote sustainability. Overall, research indicates that there are unlikely to be single spatial or physical solutions, rather that there may be many forms that can achieve sustainability, depending on the context in which they are applied (Hezri A.A & Hasan, 2004). Hence, sustainable urban planning is basically vital for the establishment of a further urban envisioning where it is a key element for the creation of sustainable cities (Rosales, 2010). At the regional and municipal levels, sustainability takes on greater complexities shaped by the nature of a place and the varying demands of citizens (Agency, 2012). Leaders at the regional and municipals levels are faced with the challenge of balancing the broader theoretical demands of sustainability and the specific practical demands of citizens. Thus, cities and organisations are focusing on the development of indicators to measure progress. Thus, sustainable development can be seen as a way of developing urban areas by compromising both present and future generations’ needs. Sustainable city can be seen as a complete by meeting the demands of present and future generations. Hence, leaders, municipal organisations and academicians are developing the indicators as to measure the level of sustainability from time to time.

3. Human Interaction Theory
According to Dewey (2005), in general there are two levels of human interaction. The first one is symbolic interaction, which is uniquely human and second, non-symbolic interaction, which is shared with infrahuman. The basic reason for human interaction according to Dewey (2005), which is associated with moral conduct was the active connectedness of human beings with one another, which is characterized by their “mutual intertwined activities” such as desire, beliefs, judgement, satisfaction and dissatisfaction. Human interaction then is influenced by individual need towards the environment and how the perceived benefits might influence negatively or positively are based on the self-judgement. Thus, it is vital to know about the society and the people needs and preferences. Maslow (1954) provide a good example for identification of the basic needs and create a foundation. In Figure 1 below shows the Maslow hierarchy of needs of human interaction.
4. Research Methodology

This research takes the view of Sekaran (2013) in selecting structured questionnaire surveys to investigate and measure attitudes and perceptions. Hence, in this study questionnaire survey was carried out to gather the data of research domain namely the user’s profile of open spaces domain (D1); the human-human interaction in open spaces (D2); the human-nature interaction in open spaces (D3); and the perceived benefits and vitality of open spaces (D4). The results served very well in formulating the variables and items for four domains in the research instrument of a questionnaire survey. There were six parts in the questionnaire form namely: (1) socio-demographic profile; (2) purpose and visit information; (3) human-nature interaction; (4) human-human interaction; (5) facilities, amenities and accessibilities; and (6) perceived benefits and opinion.

As for the sampling size, the samples were then stratified based on the percentage of areas of the study areas. Table 1 shows the size area for each study area and its percentage. Hence, based on Sekaran (2013) proposes rules in determining sample size namely: (1) sample size larger than 30 and less than 500 are appropriate for most research and (2) where sample are to be broken into subsamples, a minimum sample size of 30 for each category is necessary, the samples were then divided according to the ratio and size area which can be seen in Table 1. Thus, this study uses a disproportionate stratified random sampling. The samples of each study areas were taken using simple random sampling. The response rate for this questionnaire survey is 100 per cent.

| Study Area         | Typology            | Sample Size | %     |
|--------------------|---------------------|-------------|-------|
| Taman Tasik Shah Alam | Urban Park         | 428         | 49.7  |
| Section 7          | Local Park          | 149         | 17.3  |
| Section 18         | Neighbourhood Park | 134         | 15.6  |
| Section 8          | Playing Field       | 100         | 11.6  |
| Section 4          | Playground          | 50          | 5.8   |
| TOTAL              |                     | 861         | 100   |

5. Result and Findings

The data from survey questionnaires coded into SPSS software for statistical analysis. The main focused this analysis is to understand the relationship of human-human interactions and human-nature interactions that took place in the open spaces area.
From the exploratory survey and interviews conducted, it is suggested that the purposes of using open spaces can be divided into six general themes which are contact with nature, aesthetic preference, recreation and play, social interaction, citizen participation, and sense of community. From the overall findings of the research, the main purpose of urban dwellers visiting open spaces is majority for recreational and play purposes. Thus, it can be stated that the main purpose of urban dwellers using the open spaces are for recreational purposes. This is supported by Marzukhi et al., (2012) which stated that the provision of open spaces should have positive impact on the quality of public life and public health which then link to the economic and social aspects of the urban dwellers.
Apart from that, from the overall analysis, it can be seen that the main purpose of urban dwellers needing open spaces in the city they lived in is due to have recreational satisfaction, unity with self, sense of freedom, adventure and happiness. There are only a few of the respondents agreed that they open spaces act as a positive channel to unite with nature. This is supported by Mansor et.al (2010), who emphasised the lack of knowledge on the relationship of open spaces in promoting beneficial well-being effects and nature to the urban residents. However, the positive attitudes (measured by satisfaction level towards unity with nature, unity with self, freedom, recreational satisfaction, adventure, and happiness) of urban dwellers are commonly found while they are utilising the open spaces.

Hence, from the exploratory survey and regression analysis conducted suggests that the proposed model is based on the overall result of the human-nature interaction and human-human interaction. Table 3 shows the overall findings of regression analysis on the perceived benefits and vitality of open spaces domain.

| Table 3: Overall Findings of Perceived Benefits and Vitality of Open Spaces Domain |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Model | Unstandardized Coefficients | Standardized Coefficients | Sig. | Dependent Variable: Perceived Benefit | Overall Result |
| | B | Std. Error | Beta | | | |
| 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 | √ |

√: There is a significant relationship
X: There is no relationship

The table shows that the Section 2 Urban Park fulfils both perceived benefits for the human-nature interactions and human-human interactions. According to Department and Town and Country Planning Peninsular Malaysia (2013), the urban park should function as a local attraction for recreational activities and nature appreciation. Hence, this shows that Section 2 Urban park positively fulfil the perceived benefits for the users at the open spaces. Apart from that, Section 8 Playing Field and Section 7 Local Park also fulfil the perceived benefits of human-human interactions in the open spaces. This is due to the function of the open spaces whereby the Section 8 functions as playing field. Hence, human interaction occurred highly in the area. Department of Town and Country Planning (2013), suggested that playfield should cater for three division of neighbourhood which functions as recreational activities for children, teenagers and adults. Department of Town and Country Planning (2013) suggested that local park should cater for local dwellers for recreational purposes, sport and social community. Hence, from the overall findings, it shows that the provision of open spaces in Section 7 effectively functions for the recreational purposes, sport and social community.

6. Conclusion

In conclusion, this study has shown that the open space is vital to the city sustainability. Human interactions are important to the open spaces as both elements respond well to each other. Apart from that, this study has indicated that nature and human interactions need elements of open spaces such as
the green spaces, water elements, physical attributes to enhance the interactions between human-human and human-nature. The result will then help to improve the city sustainability indicators specifically in the field of built environment. Further studies about this study are recommended to ensure for ensuring the city’s sustainability.

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