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# Urban Residents Preferences on Urban Environmental Elements

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### Abstract

This study seeks to find the relative importance of environmental elements attributes such as green space and waterbody facility benefits that home buyers consider in residential areas. This is descriptive research in which a structured form of survey was distributed to selected housing schemes under Johor Bharu city council. It was administered to collect data from the respondents. The main preferences attributes of urban environmental elements by homebuyers’ decisions were found to be waterbody. The variable could be grouped into 3 main categories that consist of benefits, physical and value of the urban green elements. This study was the first to include both attributes from elements of green space and water body. The selection of the case study only covers residential properties owners in Johor Bharu. This study could provide best indicators for purchase decisions that could be embedded in the design of future residential development. Stakeholders and policy makers could also provide incentive, recognition and take actions to increase awareness related to allocation for these elements (green space and water body) area to internalise the medium- and long-term goals of high quality of life among urban citizens. The public inclusion and preferences for residential development could likely create a greater demand for sustainable development of residential properties in the future. This could further facilitate more interest in providing a healthy and sustainable residential property development and investment in the future.

**Keywords**: Urban Environmental Elements, Homebuyer Preferences, Sustainability, Factor Analysis

### Introduction

The quality attributes of housing are crucial for realising the basic requirements of people. There are hundreds of attributes considerations for identifying the best and influences of potential home buyers to purchase their house. Besides providing shelter, a home will be the place that most people spend their daily activities. The availability of urban environmental elements in their vicinity will give insights, satisfaction and uplift the quality of life among the residents. The creation of urban environmental elements in the urban area was among the main pillars aimed for identity and quality of life. Thus, this study seeks the characteristics of urban green elements facilities that are provided in their housing scheme and factors and attributes influencing the choice and preference of urban environmental elements in the city centre.

### Literature Review

The major dimensions of urban environmental elements could be divided into several attributes.

***Benefits of Green space and Water Body*****-** Urban environmental elements of green space and water bodies contribute various benefits including in social, economic, cultural, and environmental aspects. These elements provide an important role in supporting biological and social frameworks within the urban range (Barbosa et al., 2007; Bolund and Hunhammar, 1999; Crane and Kinzig, 2005; Gaston et al., 2005; Smith et al., 2005). Health or what they call the “lungs” is one of the benefits of the green space and water body as they may influence the physical and mental wellbeing of the town or city. (Foltete et al., 2007; Velarde et al., 2007; Hickman, 2013). Based on Twohig-Bennett and Jones (2018); Bowler et al (2010) walking in green areas “green exercise” can offer extra wellbeing benefits compared to doing exercises on a treadmill. So, it can reduce health risks hence reduce the use of health services. Time spent in these green areas can form a healthy mentality, reduce stress and improve physical wellbeing (CABE, 2004). The calm and green atmosphere as well as the existence of the lake around it gives a peaceful feeling and can reduce stress by the various group and workers as well as reducing the stress (Jusoh et al., 2014; Ogilvie et al., 2007; Mass et al., 2006). Researchers also have found that the availability of recreational facilities has contributed to reducing the frequency of criminal activities among youth and indirectly can minimise crime opportunities (Asakawa et al., 2004; Amati et al., 2006;). Then, it can be seen that these areas were associated with perceived neighborhood safety (Kuo et al., 1998). Other than that, green spaces and water bodies offer opportunities for physical activity including outdoor activity such as footpaths, bicycle paths, boating, and fishing (Hartig et al., 2014; Kasim, 2017; De Vries et al., 2003; Von Haaren and Reich, 2006).

This area is also utilised by the community as a public space for recreation such as recreational parks, playgrounds, and lakes to fill their free time with various activities, especially on weekdays (Malek & Mariapan, 2009). These activities include treasure hunts, cycling, cooking classes, and group exercises organised by themselves or Government agencies, such as the Ministry of Youth and Sports. There are also events held in the area such as weddings, open houses as well as National Day and New Year celebrations (Jusoh et al., 2014). According to Asakawa et al. (2004); (Muslim et al., 2018), green space and water bodies also can tackle environmental issues by reducing hot air in development areas, ecosystem benefits, such as improving natural air and temperatures, filtering air, reducing noise pollution by cooling effects that are few hundred meters further away from the surrounding area even more prominently during the summer and during the day (Armson et al., 2012; Oliveira et al., 2011). Areas that have natural ponds or former mine ponds that can serve as reservoir ponds. The natural state of the reservoir reserve should be maintained as a water area and green area for the reproduction of flora and fauna as well as aquatic life (Kasim, 2017; JPBD, 2016). Besides that, it can beautify the area, which is peaceful and tranquil to people who are naturally attracted (Cornelis & Hermy, 2004). Green space and water body give beneﬁts as meeting venue by creating a more intimate living environment between community members not only among youth, adults but also children (Salina et al., 2006; Swami, 2011; Germann-Chiari and Seeland, 2004; Kazarian et al., 2004; Fjørtoft and Sageie, 2000; Abraham et al., 2010). Commission for Architecture and Built Environment (CABE, 2009), says that these areas contribute to social interaction between neighbours and provide the opportunity to connect wider relationships indirectly contributes to a more caring society.

***The physical criteria for green space and water body -*** Physical characteristics of these areas that meet the social, cultural, economic, and psychological needs of the community as well as can encourage society to a better relationship with the environment (Jusoh et al., 2014; Kasim et, al., 2017; Bedimo-Rung et al., 2005; Kemperman and Timmerman, 2014; Shores and West, 2008). These criteria are the main influential factors that indicate home buyers’ level of satisfaction. Based on previous studies, the distance to green areas and water bodies such as parks and lakes is one of the criteria that influence the choice of urban residents. They prefer to visit nearby areas and the frequency of use decreases as the distance from the residence increases (Grahn and Stigsdotter, 2003; Neuvonen et al., 2007; Nielsen and Hansen, 2007). Proximity criteria to green spaces were also associated with increased levels of physical activity (Foster et al., 2005; Lee et al., 2008; Cohen et al., 2007; Coombes et al., 2010).Besides the close proximity, accessibility is one of the criteria taken into account in determining the needs of the population including good public transport, adequate parking facilities, and the surrounding area with no slope barriers. Accessibility is regarded as the main form of the chain of routes that affect community mobility (Matori et al., 2016). In addition, people with very good access to large, attractive green spaces were more likely to use it (Lee et al., 2011).In order to attract visitors and residents to the green areas and water bodies, regular inspection and scheduled maintenance can uplift the feel of enjoyment during their visit (Matori et al., 2016). Therefore, this situation can contribute to the well-being of the population and consumers and meet their needs. This is because maintenance can be related to safety, as a well-maintained park is likely to feel safer (Kruger & Chawla, 2002; Bedimo et al., 2005). If not properly maintained it will affect the aesthetics, perception of safety, functionality, and overall perception of the quality of the area (McCormack et al., 2010). As we know green spaces can significantly benefit children’s physical, mental and social development from infancy into adulthood. Safety is a key issue that often keeps children, especially girls, young people, and their parents either indoors or close to home (Islam et al., 2016; NICE, 2006). Several considerations need to be considered such as children's safety from violence and crime, safety from road traffic injuries, and clean and sanitary conditions of the green space (UNICEF, 2016). An attractive and safe environment eases the visitor as well as the safety level has to come with security guards, lighting, and fencing around the park (Matori et al., 2016). Comfort is one of the aspects taken into account for visitors and residents including lighting, drainage, materials, infrastructural features such as benches, waste bins, toilets, and so on. Kamalipour et al. (2012) describe comfort as traits and factors of urban design that assess the city as a developed city. The preference and the public participation is to assess the physical, environmental criteria which make a location attractive to live in. In addition, a well-planned city of a developing country could assist the urban land use planning with emphasis on urban nature conservation like green spaces and water bodies.

***The value of both elements -*** Aesthetic value and pleasant scenery may influence visitors and residents to the park. The characteristics of the urban elements embedded visual attractiveness and scenic beauty to the surrounding area. For instance, the psychological effect such as a sense of freedom and independence, which is less occurred especially in the workplace. The explicit value behind the social interaction activity. Besides, the natural heritage of neighbourhoods is primarily considered as part of aesthetics and increasing the attractiveness of the city and promoting its tourism potential. (Majumdar et al., 2011; Luttik, 2000)*.* Residents and visitors have a basic desire to experience and feel a sense of belonging to a place (Thomas, et al., 2006). The quality of life may improve through social participation and a stronger sense of belonging (Lewicka, 2005). According to the users, such spaces contribute to boosting the morale of the people living in the neighborhood while also giving them a sense of nostalgia and historical value.Willingness to pay for visiting urban parks is dependent on various factors which are age, income, distance from the resident, park suitability, and park safety (Dinda et al., 2021). The motives of visiting parks and consent to pay for that is also largely dependent on the awareness of visitors about knowledge of the use of that place (Brandli et al., 2015; Henderson-Wilson et al., 2017; Kotchen & Reiling, 2000).

### Methodology

In order to gather and collect the data about the current situation and perspective among homeowners, the questionnaire survey was formed and distributed to acquire the data on their thoughts regarding the importance, benefits, and relevant idea about the urban environmental element in the vicinity. The selected residential area for the distribution of questionnaire surveys is within Kulai and Skudai, Johor Bahru. The sample survey was significant to produce good data related to the preferences of urban green elements attributes which are provided in this vicinity. It is important to ensure that the environmental elements such as water bodies and green space were visible in that particular area. In this survey, about 396 respondents were asked to rate how agreeable they were with the items on a five-point Likert scale, ranging from 1 for “strongly disagree” to 5 for “strongly agree”. The data analysis process started with the identification of factors such as locational factors, physical factors, economic factors, and social factors. By using factor analysis, the homeowner preferences of urban environmental elements were identified. The factor analysis technique is part of statistical techniques in the field of scientific research and is widely used in the social sciences and psychology. This method also will indicate that the attributes are located in the right distribution value. There are 19 different attributes indicating the main attributes consist of benefits, physical, and value. Table 1 below shows the attributes related to this study.

**Table 1: List of Attributes**

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| **Benefit** | **Physical** | **Value** |
| 1. Health  2. Reduce Crime rate  3. Less environmental issue  4. Hassle free  5. Beautify area  6. Activity  7. View  8. Social Interaction venue  9. Facilities | 1. Size  2. Proximity  3. Accessibility  4. Well maintained  5. Comfort  6. Safe for children | 1. Aesthetic Value  2. Willingness to pay  3. Sense of belonging |

Each factor value needs to be scanned and scrutinised to proceed to the next analysis. The value of the accepted coefficient factor is 0.5 and above while the value of the coefficient is not recommended to be used when the value exceeds 0.9. The determinant value for factor analysis must exceed 0.00001. the process procedure of extracting and rearranging the factors with the highest value to the lowest value in one dependent variable. All the values ​​of these factors can be seen in the table Total Variance Explained as the variance for each variable is indicated by the value of communities referring to the contribution given to the dependent variable. The values ​​of communities for each factor ranged from 0.0 to 105 to 1.0. This value of 1.0 means that the factor contributes 100 percent and vice versa. The eigenvalue is a dependent variable that is represented by a factor of factors generated in the component matrix that will show the highest value and the lowest value. The value of the component matrix must exceed 0.4, factors whose value is less than 0.4 will be removed.

### Results and Discussion

Exploratory factor analysis was used to identify preferences and dimensions on green space and water bodies. Table 2 shows that Bartlett’s test value of sphericity is 0.000 which is significant (k <0.05) according to Pallant (2007) as in Table 2, the test results show a significant result where the p-value is less than 0.05. The test results show that the correlation between the items was sufficient to proceed with the factor analysis. The conclusion from the results is that the data obtained do not have serious issues related to multicollinearity, therefore the data obtained are suitable for use in conducting factor analysis.

**Table 2:** Table of KMO values and Bartlett’s Test of Sphericity

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| **Method** | | **Value** |
| **Sample measurement Kaiser-Meyer-Olkin** | | 0.876 |
| **Value test *Bartlett’s test of sphericity*** | Approxi Chi Square | 8782.71 |
|  | df | 861 |
|  | Sig | 0.000 |

The initial value of eigenvalues ​​is a value that represents the change in variance of each dependent variable. Four (4) components (factors) that represent eigenvalues ​​greater than 1. The total of these four factors accounted for 47.874% of the change in the value of the overall variance i.e. mean; factors that make buyers tend or prioritize the elements of the urban environment i.e. green areas and water bodies. All variables in the extracted factors have values ​​greater than 0.1.

**Table 3:** Value *eigenvalue* and variants factor for measurement Part D and E

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| **Factor** | ***Eigenvalue*** | **% Varians** | **Cummulative** |
| **1** | 10.883 | 25.911 | 25.911 |
| **2** | 5.391 | 12.836 | 38.748 |
| **3** | 2.048 | 4.877 | 43.624 |
| **4** | 1.785 | 4.250 | 47.874 |

Four groups of factors that were successfully formed as a result of factor exploration analysis with the value of the variance of each factor identified are (F1) which is the factor explaining the benefits of urban environmental elements (25.91%), (F2) which is the second factor is the factor regarding the impact on housing prices ( 12.83%), next (F3) which is the factor on the physical elements of the urban environment (90%) and the fourth is (F4) which is the factor of values ​​obtained on the elements of the urban environment (4.25%). Therefore, the exploratory analysis of these factors proves that indeed only four factors exist and explains that the items used in this study are distributed according to the appropriate factors with the variables involved in this study.

### Conclusion

Analysis obtained the factors with the highest value are the value of factors that include the benefit factors obtained from the existence of urban environmental elements in residential areas. The highest total factor value is 10,883 with the value carrying the variance change of 25,911. The variables representing the benefit factors were activity, scenery, interaction, beauty, healthy, multi-racial, reduced crime rate, reduced environmental problems, comfort, and proximity. The variables that contribute to the highest variance value change refer to the factors that most make property owners tend or prioritise elements of the urban environment in their residential property areas. Next, the residential-related characteristic factor has the second-highest correlation which has a factor value of 5.391 as well as giving a variance change of 9.113. The variables found in the residential characteristics factor are separate title document certificate, green area distance, owner, water body distance, bank loan rate, number of bedrooms, number of bathrooms, housing park location, distance from the city center, land status, freehold ownership or leasehold tenure and the condition of the building.

Next, the third factor includes basic facilities, shop facilities, access to public transport, facilities to carry out activities, site area of ​​urban environment elements, away from hustle and bustle, there are bicycle paths, well-kept and protected and safe for children. This factor is related to the physical factor of the urban environment element itself which gives a correlation value of 2,048 with a variance change of 4,877. The last factor, the fourth factor that makes urban dwellers inclined towards the elements of the urban environment is the factors related to the values ​​found in those elements such as aesthetic value, the satisfaction that drives the willingness to pay for activities, the value of love to maintain and keep environmental elements in good condition. and features of historical value found in elements of the urban environment. Based on the overall results of the study, factor analysis that has been conducted shows that property owners prioritise the benefit factors they get from the elements of the environment and give a good perception and influence the tendency to have elements of the urban environment in their residential property. This is in line with the level of inclination of Asian society which is more inclined towards the advantages and benefits derived by the elements of the urban environment which are characterised by elements of the natural environment. In addition, to wanting to create a harmonious and affordable housing environment (Li, 2010).

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