Understanding Children Preferences of Natural Environment as a Start for Environmental Sustainability

Ainul Marziana M. Mahidin* and Suhardi Maulan

Department of Landscape Architecture, Faculty of Design and Architecture, University Putra Malaysia,
43400 UPM Serdang, Selangor, Malaysia

Abstract

Knowledge about the environment is a key towards environmental sustainability. What is the best environmental education for children? This study aims to investigate children preferences for natural environment that should become the basis for environmental education. To measure preferences, photo-projective method is used to 17 children, aged in between 7-11 years old. They were brought to a park and asked to photographs preferred scenes, and were interviewed to clarify the scenes. Results of the study help us to understanding children preference for natural environment setting, which can be used to enhance environmental awareness and improve environmental educations programs for children.

Keywords: Children; environmental preferences; photo-projective methods

1. Introduction

Environmental degradation is a global issues and one of the Ten Threats officially cautioned by the High Level Panel on Threats, Challenges and Change of the United Nations, (www.un.org, 2004). Human

* Corresponding author. Tel.: +603-8946-4092/4093; fax: +603-8946 4005.
E-mail address: marzianamahidin_jenna@yahoo.com
intervention to the ecosystems such as urbanization and industrialization are partly or completely affecting the functions of ecosystems at different level and of course lead to environment degradation. The group of people that are working against the environment seems to have no civic conscious and usually prioritize the profit without concern about the impact towards the environment and their future of life (Hassan, 2009). Those unethical human interventions to the ecosystems should be stopped and the one of the prominent reasons of human unethical interference to the natural ecosystem are their lacking of appreciation towards the natural environment. Lacking causes appreciation towards nature people to neglect the important of nature, its benefits and function to people and society.

The government of Malaysia realized the important to educate the public about environment and they have done it through Environmental Education Program across curriculum in schools (Hassan, 2010). In addition, many Non Government Organizations (NGOs) in Malaysia have also take necessary steps to educate people, either through formal and informal education programs. Although there is sufficient efforts to educate school children about the important of environmental protection, the efforts is not sufficient enough for pre-school and primary school children. A study by TNS (2007) using online interview regarding the levels of concern for environmental protection amongst Asian children (n=901) resulted that only 15% of participant feel very concerned, 43% (somewhat concerned), 32% (not very concerned) and 10% (not at all concerned). The study also reported that only 17% of Malaysian children (n=302) are very concerned, 54% (somewhat concerned), 26% (not very concerned) and 3% (not at all concerned) about the needs of environmental protection. Although there are increasing numbers of programs, campaigns and initiatives encouraging environmental awareness amongst children, the result above shows that the current awareness programs are ineffective.

The consequences of not paying enough attention to children relationship to the natural environment will cause the children to feel that, environmental issues and concern are alien subjects to them and may causing them to behave negatively towards the environment. It is argue that, awareness and appreciations towards nature should be instilled at the early stage of human development because anything that children perceived at the earlier life will easily influence their behavior and attitudes of their later life. The positive relationships of children to nature and individual range of emotions have special influence on the behavior of children to nature (Vaselinoska, 2010). People should be engaged with the nature since the early days to create the relationship, appreciations and sense of belongings with the environment.

However, what is the best environmental education for children? What should be the basis for their learning? A study by Simmons (1994) shows that children tend to think about and judge places at least partially on the basis of potential activity. Therefore, it is important to understand how children views and preferences the nature. It is important to understand children views and preferences towards the environments because children have different need, aspirations and behavior than adults since their mind are still developing. Our understandings about children preferences for the environment are important in order to enhance the environmental awareness especially in an era where children tend spend more times indoors playing computers or watching televisions rather than playing outdoors engaging themselves with nature.

2. Literature Review

In the environmental preference literatures, often been suggested that people prefer natural environment over built landscapes (Kaplan et al., 1972; Kaplan, 1978) and natural elements such as trees and water always factors that affecting preferences. In addition, forested areas, nurtured landscapes and areas with good maintenance are also preferred by people (Kaplan, 1984). In 2008, Matsuoka and Kaplan suggest people preference in the urban landscape can be divided into two groups that are based on the nature needs and human-interaction needs. The nature needs are more directly linked with the physical
features of the environmental settings with three categories. They are contact with nature, aesthetic appearance and opportunity for recreations and play. Contact with nature reflects a variety of ways in which human can have a contact with nature such as the views towards and experiences with natural setting. The aesthetic preference involves range of topics related to the bases of preferences including scenic beauty, cleanliness and pleasantness and also negative view of nature such as scary, disgusting, uncomfortable or even unsafe (Talbot and Kaplan, 1984). Meanwhile, opportunity for recreation and play refer to the affordability of the spaces to be used by people for some purposes: an idea that relates closely with Gibson’s theory of affordance (1979).

2.1 Children and Environment

Part of environmental education for urban children is by spending time in natural environments to experience and appreciate nature (Simmons, 1994). However, the experience was designed by adults with little knowledge and understanding of children and nature, thus the setting might not provide good “nature” experience for the children. Moreover, many studies on understanding about designing environmental educations for children is usually involving adults (read parents) instead of children participations themselves. Therefore it was necessary to create and design experience for children based on their perceptions and views, so that they can be comfortable with the environment. It is argued that nowadays, children outdoor man-made playground typically those consist of isolated pieces of equipment place in an open lawn that primarily focus on children physical development (Herrington, 1988) and not contributing to the holistic understanding about environment. Besides, it is also argued that the present children outdoor play environment is too rigid and simple compared to natural environment because the man-made outdoor environment did not offer varieties of play opportunities that come from various vegetation characters and landforms (Fjortft, 2000). Landscape if designed cleverly can provide an ideal setting for children to enjoy and learn about environment. However, the landscape setting must be right or preferred by the children at the first place.

2.2 Children Environmental Preferences

Tunstall, Tapsell and House (2004), mentioned that children are one of the local environment users but rarely consulted by both landscape designers and resource managers although, there is need to create environment that ensure children survival and development. Although there is a high level on interest in environment and environmental action by children, but yet little knowledge is know on how children perceive the natural environment (Tapsell, 1997). Children respond to places according to their 'potentiality' - what the environment might offer or 'afford' as suggested by Gibson (1979) affordance theory, however affordance can be positive and negative as well as visual and function. Tapsell (1997) proposes certain positives and negatives elements of external environments that are read by children. Positive elements such as; color (natural), trees, woods, places with different levels, shady areas, leaves, big grassy areas, animals, places you can climb/hide/explore/make a den, places that challenge you, places that have 'millions of bits', and places that have wildlife. Negative elements such as; dirt, pollution, rubbish, litter, damaged things, color (un-natural), animals, places where you can't, nowhere to sit/hide/shelter, places that are 'boring', and places that are too 'open'. Titman (1994), argue that children read images of general environments by identifying elements which convey meaning or significance. This study aims to investigate children preferences for nature and by understanding children preferences, the landscape designers could contribute significantly in improving and management of the environments.
3. Methods

There are a lot of methods can be used to gauge children preferences and perceptions for environment. In the study on children perceptions of river landscape by Tunstall et al. (2004), photographic technique appears to be a valuable participatory method for accessing children’s immediate and detailed perceptions and uses of river. In the study, children were grouped with their same gender and were taken on a half-day visit to the study site and the children were required to take still photographs, video recording and make notes about their observation. Yamashita (2002), mentioned that among many methods use to asses public landscape preferences, a use of photographic method is one of the easiest and convenient way but there are two arguments regarding this method; first, is on the validity of representing a real landscape with photographs and second, is on the mediocrity of information obtained by this method. To test the concern, Yamashita (2002) uses photo-projective methods in an attempt to explore the roles of water in children perception and evaluation of the landscape. The children were asked to employ photo projective method and the data obtained from the children were compared with the adults’ data on the environment preferences. The result shows that photograph techniques can be applied for understanding in children preferences and perceptions for environment.

Based on the Yamashita (2002) and Tunstall et al. (2004) this study employed a photo projective method or PPM to gauge children preferences of natural environments. With PPM, the landscape photograph would be taken by the park environment users, and photographs taken by the children would be analyzed for contents and spatial qualities. This method the children themselves to project their views into the photographs, thus the researcher can directly obtain and analyzed information that the children see and assess in the landscape.

3.1 Participants

About 40 children were invited to take part in this study and all of them re-aged between 7 to 11 years old. The potential participants were randomly selected among the children of the staff of Faculty of Design and Architecture, University Putra Malaysia who live within Kuala Lumpur and Serdang area but never been to the research site. The participants must agree to participate on a volunteer basis and get consent from their guardians or parents. From 40 children invited, only 17 (male = 6 and female = 11) agreed to participate (42.5%) and obtained consents from their parents. The average age of the participants is 9.7 years. The average age is good accordance to Piaget child development theory that suggest in between 7 to 11 years old, a child can already think about their physical surrounding and relate it to him/herself even though it is not yet reach maturity level. This suggestion is important because the data produced will be somewhat logic and valid to represent children view of the natural environment as a whole.

3.2 Study Site

In order to obtain preferences for the natural environment, the participants were taken to Taman Rekreasi Lembah Kiara (Lembah Kiara Recreational Park) Kuala Lumpur, which is located about 20 kilometers west of the city and surrounded by the residential areas. This park was selected as a research site because it has both natural and man-made style landscapes. The natural area consists of small streams with marginal and aquatic plants and the park was built predominantly on a disturbed forest that has regenerated. The man made landscapes include a play area with typical structural play equipments and jogging track. The park is popular among urban dwellers looking for a piece of nature to involve in recreational activities such as jogging, brisk walking, nature hiking and mountain biking. Lembah Kiara
Recreational Park with its semi-natural setting seemed to be perfect for this study because it provides “choice” for the participants.

3.3 Data Collection Procedure

For a better management and safety purposes for the participants, the participants are divided into two small groups, each group visited Taman Lembah Kiara on different weekends with the company of a group of researchers. In addition to the safety, the idea of break down the participants into two groups is to avoid bias because fewer children would cause less interaction among them and thus less opportunity for the children to be able to influence one another in photographic exercise. All the participants were provided with a digital camera and asked to take 30 pictures of anything they prefer to see in the park. Participants were free to explore the park by themselves without any interference from the researchers. The photographic session end after almost 4 hours and when asked, all of them were excited and show high level of enthusiasm. All of the participants managed to take 30 photographs. After the children hand out the camera to the researcher, as a token of appreciation, they are free to play in the park and the researcher systematically observed their behavior in the park.

After the visit to the park, the researcher collected all the photos and arranged them according to participants. Once the process completed, the participants were then asked to attend an interview session with the researcher. All the participants were then required to select 15 photographs that they really prefer. The next steps are to ask each participant reasons they captured each 15 particular photographs. The interview sessions were recorded using digital recorder and later are transcribed verbatim.

4. Results and Discussion

From the researcher observations, the participants looked enthusiastic and excited about their assigned tasks. Nevertheless, for the first few minutes, the participants seemed to having discussion with each other but after few snapshots, the discussion disappeared and they worked individually afterwards.

4.1 Photograph Classifications

To classify the photographs, the interview data were analyzed during the interview, the participant were asked about each photos taken by them, such as; why they photograph the scene and what element they most preferred in the scene. The questions were more intense to the 15 photographs the participants choose as the most preferred scenes. By using a content analysis method, the interview data as well as the photographs, were grouped into several classifications. An initial classification process, produced a list of over 28 possible categories, but at the end, 6 classifications had been finalized. The classifications are trees and plants, water features, man-made environment, animals and insect, nature environment and park user activities (see Table 1).
Table 1. Frequency and percentage of children most photographed features and object. (n=17)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees and Plants</td>
<td>74</td>
<td>32</td>
</tr>
<tr>
<td>Water Features</td>
<td>52</td>
<td>23</td>
</tr>
<tr>
<td>Man-made Environment (Scenes)</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>Animals and Insects</td>
<td>36</td>
<td>16</td>
</tr>
<tr>
<td>Nature Environment (Scenes)</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Park User Activities</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>228</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4.2 Trees and plants

The data analysis results reveal that the most prominent photograph that has been captured by the participants instead of the scenes is landscape feature such as plants (32%). However, this category can be sub-divided into single tree (32%), part of trees (20%), flowers (19%), cluster of trees (18%) and shrubs (12%). Tiltman (1994) have identified trees as important positive elements in children environments. Thus study show that each child captured a minimum 4 pictures comprising single vegetation, thus showing a greater interest of trees and vegetations among participants. This findings is parallel with Tunstall (2004), that show trees and vegetation are the most commonly photographed features (48%) but in opposite with Yamashita (2002) because in his study, less than 10% of the children’s photographs are vegetations. For this study, the participants choose to photograph trees with irregular canopy such as Juniperus spp. because they are interested with the shapes. However, they also photographed vegetation due to the color of trunks and leaves. 7 years old participants captured a tree trunk (see Figure 1) regardless the trash under the tree and mentioned ‘it looks like a buffalo with a big horn and I can climb and sit on the branch’. The statement show that, children might photograph the trees that have affordance value as per suggested by Gibson (1979).

Fig.1. Interesting trees
4.3 Water Features

The data analysis results also found that water features are the subject that regularly photographed by the participants in which the water fountains were shot 40% of the time, waterfall (23%), streams (23%) and ponds (12%). The finding is similar with Kaplans (1982, 1989 and 1999) findings that claims that water always been preferred by people because water is closely related to the human biologically and water can evoke positive feelings to people of all ages. From the study site, the water fountains is one of the main focuses because it assumed that as people enter the park the fountain is very significant in term of aesthetic values and as a focal point. One of the participants (10 years of age) put it nicely “I never saw a fountain this high before, when I looked at the fountain, I feel so calm” (see Figure 2). One interesting observation is the percentage of fountain and waterfall scenes is similar (23%) even though, later more participants were found playing in the stream rather than near to the waterfall. It is suggested that the scenes with a high degree of affordability does lure people usability even though water fountain is more dynamic and perhaps interesting visual effect.

4.4 Faunas

One of the reasons for Lembah Kiara been selected as a study site is because it huge diversity of faunas despite the park design that combine both built and natural environment. Interestingly enough, 36% of the photos captured by participants consist of the animals and insects. The most photographed animals is monkeys at 61%, followed by tortoise (17%), birds (14%), and insects (6%) such as dragonflies, butterflies and also beetles. From our observation, the participants are really interested and amazed with the animals’ appearance and they try to capture a lot of animals photos. It can be suggested that park manager should used animals as main features to attract park visitors.

4.5 Man-made Environment v/s Natural Environment

From the data, the photographs can also be divided into scenery category and further divided into manmade and natural scenes. Man-made scenes consist of photographs with the views of park facilities, such as gazebos, bridges, exercise equipments, buildings, walkways and plazas. On the other hand, natural environment consist of the photographs that contain views of the forest, wooded and vegetated areas, as well as panoramic view of the mountain bordering the park. The data suggest that the man-made sceneries are more preferred by the participants with 18% of the total photographs. In comparison, the scenes of the natural environment are only 6% of the total photographs.

However, even though, the man-made scenes are highly preferred, many of the natural scenes received highly positive remarks. For example, a 10 years old participant mentioned, “I love forest, I think it was beautiful and I guess I can play anything that I want there” (see Figure 3). But there is also negative expression towards the natural scenes. 8 years old participants voiced out ‘I love the planting arrangement, the branches and the color of the leaves, but I never wanted to go there because it was scary’. Thus it is obvious that the children have a positive feeling for the natural environment but they might find the appearance of the natural environment is not interesting enough to be engaged with.
4.6 Park Activities

Besides all the features mentioned before, the participants also captured scenes that focus on activities (5%) done by the park users. The participants prefer activities based scenes such as a group of children learning to play rollerblades. During the interview session, most of them wished that they could play the same things. Beside that there also picture of peoples doing tai chi and special events such as treasure hunt activities and birthday celebration. The participants shot the picture because they prefer park environment with lots of people, which maybe make the park livelier and safer for them to be in inside the park.

5. Discussion and Conclusion

Seventeen (17) children participated in this study and the data revealed that children, in the park, prefer to see natural elements such as trees and water. The findings are not surprising and match with many previous findings (Kaplans, 1982, 1989) that show people always prefer these two landscape elements over the other but it is noted that their preference will be much higher if the landscape elements have distinct character such a trees-trunk that looked like a horn or water fountain that shoot several meters heights. Furthermore, since this study focuses on children, the findings further enhance the debate either people preferences towards the environment is innate or learned phenomena (Knopf, 1989). Nevertheless, while landscape features always been preferred, if we looked the preference pattern based on the scenes, the children shows strong preference inclination towards man made scenes (18%) in comparison to natural scenes (6%). Once again the findings echoes previous findings that shows a scene with some sign of human intervention will be much more preferred by people (Miller, 1984). It is interesting to note that some of the children said that the natural areas are beautiful but they feel scare to go inside the forest. The children concern shows that nature without being learned about their functions, values and benefits may only be preferred for their appearance only but not for usability. As a results of the perceived danger in the natural areas, it is expected that children when being observed play more often in the man-made areas rather that the natural areas.

The findings above shed some lights on to solve the issues that being brought up earlier in the study that is environment degradation, in which this study shows that preservation of nature should be a top most priority in environmental protection plan because the participants shows high preferences for natural elements with some manmade interventions. However, the natural areas preserved should not be left alone for the sake of nature and ecosystem. The people or potential users should be told about the values
and benefits of the particular nature so they can appreciate and enjoy the areas. In term of design, as we said earlier, cannot be preserved for the sake of nature and ecosystem, the natural areas should be plan and design for “wise use”. Some utilitarian type activities like picnic, jogging and water play can be incorporated in the natural areas. Along with the suggestion too, the natural areas should allowed some degree of man-made design appear in the natural areas. The man-made designs do not have to be avant-garde or structuralism in nature but rather a simple notification that these areas can be used for people as per suggested by Gibson (1979). In summary, it is suggested that awareness can be created by allowing certain degree of participation in the natural areas. It is hoping that allowing participation, people will feel attach to nature and willing to protect environment.

This study main focus is on the question, what should be a basis for children environmental education. So based on the findings it seemed that children do not cut-off themselves yet with nature but rather temporarily disconnect perhaps due to living environment, parents personification and influences and peers pressures. Therefore, it is suggested that the basis for environmental education can be formal as well as informal and since the children show greater interest on the uniqueness of the natural features, it is also suggested that that the environmental education focuses more hands-on activities. With these pedagogical approaches, children hopefully can see what nature is really is and befriend with them rather than looking at nature with scary faces.

In conclusion, this study provides data about children preference from qualitative point of views. An empirical study should be done to know if the data would reveal the same results. Children states of relationship with natural environment are important to be explored because children are a future guardian of our planet earth. Their perception about what is happening around them should be gauged because their perceptions are not right, detrimental to the earth fragile conditions will continue.

Acknowledgements

The authors would like to thank all the children and parents who participated in this research. Thanks also due to Dr. Mohd. Yazid at Universiti Putra Malaysia for helping us analyzed the data. A very special thank you is dedicated to Universiti Putra Malaysia for providing funds to conduct this study through UPM Research University Grants Scheme (RUGS).

References


