Preserving the School Landscape and its Relationship with the Learning Process of Secondary School Students

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Abstract. A peaceful and tranquil environment can influence the school landscape by assisting the learning process either directly or indirectly, through various methods, such as providing an area or place for a variety of activities, to socialize, to interact and to do revisions outside the classroom. The purpose of this research is to determine the role or function of the school’s landscape in preserving the environment at the school level. For this reason, primary data were collected from the surrounding schools located in Klang Valley, Malaysia that were chosen randomly. Secondary data were obtained from various relevant agencies. Structured interviews were conducted with the higher management of the schools concerned with regards to the development, management of landscape and the contribution of soft and hard landscapes in the learning process. The outcome of the research indicates that the landscape functions in assisting the learning process and nourishes the awareness of the students for their affection toward natural environment. This study has proven that landscape plays an important role in the learning process and nourishes the students’ awareness in appreciating the environment beginning at the school level. Thus, the school has to take the necessary initiatives by way of increasing soft landscapes such as planting more shaded trees; hard landscapes such as gazebos, garden chairs and tables as well as man-made landscapes such as fish ponds, waterfalls and fountains which could be used by the students and teachers in the learning process and to encourage them to appreciate the environment.

1. Introduction
The landscaping function in primary and secondary learning institutions is not only for the surrounding aesthetic values and to offer shade, besides it is also to provide and create learning process and to encourage environmental appreciations of students. Recognizing the significance of landscaping in these learning institutions, this study endeavors to promote key factors in regards of knowledge functions of school’s landscape in education understanding process [1, 2] and also in encouraging students to value the surrounding environment [3]. This is due to schools as a social institutions context and it play an important function in molding the end-users means. Primary and secondary learning institutions command changes to end-users mentality and their intellectuality level, an institution which delineates the nation and determines the direction or path which a country is on. Schools are also the institution which determines future generation and provides the basis for the development of a country.
will not experience any development in the absence of an effective education system. An effective education system could be implemented much effectively if the functions of the surroundings of the school assist in achieving the said purpose [4].

Based on the preamble above, the intent of this study is to develop the affection towards the environmental issues from the early schooling stage. Apart from above justification, the information gathered from this research can be used as a guideline in assisting the education process, thus it parallel according to the National Education Philosophy. Landscaping in schools are portion of the learning component which need to be highly addressed.

The role or function of the school's landscape in preserving the environment should be from the schools level. We need to have a clear way of preserving the schools environment. Recognizing the circumstances that there are problems in developing landscaping in schools, the government has its plans to permeate these problems [5]. Several programs are introduced in liven up the surrounding and environment in schools were held at municipality, district and also at state levels. Programs are introduced and organized via the Ministry of Education, Malaysia in ensuring every school performs its position in developing their own landscaping. Ministry of Education introduced and launched its 3K Programme in year 1993 and the programme stresses on the safety, cleanliness and beautifying the schools [6].

The key intention in this study is to determine the role or function of the school's landscape in preserving the environment from the school level. The specific study objectives are to distinguish the contribution of soft and hard landscapes in the learning process and to encourage students and teachers to appreciate the environment.

2. Literature Review

2.1 The Natural School Environment (Outdoor)

It is indicated where there are inadequacies in highly managed and risk free play-area essentially found in school (‘play-area’ is terminology employed locally to portray the playground in school) and that supplementary advantages could be resultant from playing in natural outdoor environment in schools. According to Stephenson (2003), by giving an example, relates adolescent and children physical risk-taking in natural environment outdoor with children potentials in developing both self-confidence and disposition in managing the risk well [7]. Correspondingly, taking natural environment risk were correlated to the children’s learning routes and also dispositions development [8].

Bell and Dayment (2008) explored the potential and capacity of the natural school environments in promoting well-being and health, and to transpire an integrated element of multidimensional, learning-institution-based promotion health strategies [2]. Particularly, latest research in measuring natural school environments as places for interests to the teachers and children’s well-being advocates can meet-up, be informed and to support each other. Furthermore, Bell and Dayment (2008) highlighted that there are bodily growth of verification that natural school environments, as of school’s setting, may impact to children’s mental, physical, social and inner well-being [2].

A growing literature body suggests that individuals need connection with natural environment for selves’ well-being. Conversely, at this junction, the young children are increasingly becoming more separated from their natural surrounding as their access to the surroundings are gradually diminishing [3]. The significance of schooling and prior-to-school settings in correlating children’s with natural surroundings has been recognized. Furthermore, the yielded outcomes suggested that natural outdoor environments furtherance children’s imaginative act, the developmental of pro-behavioral relationships and permits natural environment as a place of play-learning. Dowdell et. al., (2011) concluded that in order to make use of an effective outdoors play-learn settings, early childhood learning centers ought to provide children with an access to the natural outdoor environment and educators who are supportive towards children developmental relationship with the nature [3].

According to the past studies, provision for children to move freely within the space of the outdoor environment is one of the main advantages of psycho-behavioral context factor [9]: physical movement, together with play-act, has been portrayed as one of the most powerful and natural learning approaches
for the youth [10]. As noted by numerous researchers [9]-[11], when learning or playing outdoors children can develop on a larger scale context, explore and discover the world first hand and experiencing natural phenomenon such as the weathering, the changing climatic and casting of shadows.

In relationships with their peers, children can easily back away from any confrontation when at outdoors and so likely less to indicate signs of self-frustration and lack of mutual cooperation [11]. Furthermore, adults apparently to relate more differently towards children in the outdoor environment. Rivkin (1998) noted that when inside, the children are expected to be quiet and sit still; meanwhile when outside children are expected to make a noise and run freely [12]. This suggested that children can further push their boundaries of who they were and what they may do without being fear of admonishing for being too overexcited, messy or loud [11][12]

3. Methodology

This research was carried out at public schools sited in urbanized locales in the Klang Valley, of the state of Selangor. The chosen case studies are at Shah Alam and Subang Jaya in the Petaling district in order to represent the learning institution in the urbanized area. The grouping of schools in the urbanized area were classified according to criteria set by the Education Department of Selangor and the Federal Territory Education Department (2011). The justification for choosing Klang Valley as the case study area due of the these factors: firstly, it is strategically located within prime region in Malaysia where urbanization and sprawl is at rapid pace; secondly, schools within this area are experiencing modernization due to the positioning of nation’s centre of innovation, particularly the capital Kuala Lumpur; thirdly, the extent of landscaped area at primary and secondary institution in Klang Valley which is decreasing due the shortage of land-plot and price hike of the land-plot as a results of rapid development and impact to its environment [13][14].

This study employed both gathering of primary and secondary data. The secondary data were documents, records and statistics gathered by diverse agencies or departments such as the Selangor and Federal Territory Education Department and also from Ministry of Education, Malaysia. General data obtained from Statistics Department, Malaysia were also utilized. The similar method were applied to specifics students and educators were obtained from chosen schools in this study. Information related to National Education Philosophy and National Landscape Policy which concerns the learning institutions planning and development, social economy, population density, local infrastructure and planning are also gathered for the objective of this study. Data were also obtained through the websites of government agencies namely the Economic Planning Unit of the Prime Minister’s Department, Ministry of Trade and Industry, Economic Planning Unit of Selangor and Department of Statistics, Malaysia. Other tertiary sources of information included books, journals, technical report, thesis and dissertation. Prior to the introduction of the research form, researchers have conducted specific reference procedures namely research by experts in the field of landscape plants, landscape architects at the National Landscape Department, experts in the education field, teachers who are experienced and other individuals (landscape consultants) with extensive experience in the related field.

The quality of the schools landscape function in the Klang-Langat Valley were valued based on the aspect of landscape function by co-relating its relevancy in aiding the process of learning and nurturing the awareness among students towards environmental appreciation [15]. Evaluation on the purpose of landscaping in schools were based on landscape expert’s opinion from National Landscape Department, Putrajaya Holdings Sdn. Bhd., Putrajaya Development Corporation, and Ministry of Education Malaysia and also from school headmasters.
4. Result & Discussion

4.1 Planning for Selection of Landscape Themes and Concepts

Table 1 shows nine major landscape concepts selected by school management in the Klang-Langat Valley. The most popular school landscape concept is the type of artificial landscapes involving 53 schools (51%), followed by natural landscapes at 49 (47.1%) and Nusantara landscapes at 21 (22%). However, almost 50 percent of respondents stated that they did not have a specific landscape concept that could be linked to the school environment. This may be due to the lack of exposure of managers and school administrators on the concept of school landscape. Planning to choose the theme and concept of the school landscape solely depends on the creativity of the school management.

| Concept                  | Frequency | Total |
|--------------------------|-----------|-------|
| Natural Landscape        | 49        | 25.8  |
| Artificial Landscape     | 53        | 27.9  |
| Islamic Concept          | 3         | 1.6   |
| English Concept          | 1         | 0.5   |
| Chinese Concept          | 3         | 1.6   |
| Mediterranean Concept    | 1         | 0.5   |
| Japan Concept            | 4         | 2.1   |
| Bali Concept             | 10        | 5.3   |
| Nusantara Concept        | 21        | 11.1  |
| No Concept               | 45        | 23.7  |
| Total                    | 190       | 100.0 |

Source: Field Review 2013

4.2 Relationship and Association between Quality of Landscape Function and School Achievement in Academic Field, Knowledge and Environmental Awareness

For the purpose of testing the relationship and association between the qualities of landscape function with school achievement in academics, character and environmental awareness; the research used the Pearson correlation test and Chi-square. The purpose of the analyses were to determine whether there are significant correlation concerning the functions of landscaping or otherwise within learning process (independent variable) and with students in academic achievement, personality and activities, fostering awareness of the environment for five years (dependent variable).

Table 2. shows the mean of dependent variables, which are landscape functions in assisting learning, characterizing students and promoting environmental awareness. For the function of the landscape that helps in cognitive learning, the highest mean score is for the component of the facility (54.8), and followed by flora component mean score (43.59), then the mean score for the component landscaping (33.94). Meanwhile, for landscape function to form the character of the students, the highest mean score was achieved by the component of the facility (66.46), followed by the flora component (47.12), and the components of the landscape (29.52). This proves that the components of the facility consisting of elements such as pedestrian paths, bicycles parking, lights, badminton court, field and others have a high contribution compared to other components in its function to help the learning process and shape students either directly or indirect.

With reference to the total score, overall schools tend to have landscapes that can be attributed to environmental awareness with mean 218.71. This shows that the landscaping elements in school surroundings have a role in fostering the love of the environment since at the school level. Assessment made on landscaping functions by professionals comprising of officers from Education Ministry and Selangor State Department of Education Office; National Landscape Department, Perbadanan Putrajaya...
and Putrajaya Holding Sdn. Bhd. may cause landscape function to foster environmental awareness of the school earning a high mean.

**Table 2.** Mean and standard deviation for variable score (dependent), landscape function (cognition, personality and environmental awareness)

| Landscape component | Cognitive Function | Personality Function | Environmental Awareness Function |
|---------------------|--------------------|----------------------|----------------------------------|
|                     | Mean   | Std D | Mean   | Std D | Mean   | Std D |
| Hard Landscape      | 33.9   | 6.27  | 29.5   | 5.42  | 34.1   | 6.164 |
| Soft Landscape      | 21.8   | 3.23  | 21.0   | 3.03  | 29.9   | 3.114 |
| Artificial Landscape| 4.47   | 1.95  | 2.99   | 1.24  | 4.48   | 1.889 |
| Facility Element    | 54.8   | 2.12  | 66.4   | 2.82  | 51.0   | 1.936 |
| Fauna               | 23.0   | 4.43  | 19.0   | 3.39  | 28.5   | 5.086 |
| Flora               | 43.5   | 8.40  | 47.1   | 8.54  | 72.0   | 13.538|
| Facility Element    | 180.   | 18.2  | 185.   | 17.0  | 218    | 22.980|
| Total Score         | 180.20 | 18.2  | 185.70 | 17.0  | 218.71 | 22.980|

Source: Field Research 2013

**Table 3.** Chi-squared² Relationship between Landscape (learning) Function with School Academic Achievement (Total)

| School Academic Achievement | Landscape Function Score (Learning) |   |   |   |
|-----------------------------|------------------------------------|--|--|--|
|                             | High | Moderate | Low |   |
| No                          |   | %       | No | % |
| High                        | 39  | 79.6     | 23 | 51.1 |
| Moderate                    | 10  | 20.4     | 20 | 44.4 |
| Low                         | 0   | 0.0      | 2  | 4.4 |
| Total                       | 49  | 100.0    | 45 | 100.0 |

Significant at p <0.01; df = 4; Chi-squared² = 35.993

Using the Chi-squared² (Pearson correlation) statistics method, landscape function variables in helping learning have been tested against the segment of academic achievement variables. Table 3 presents what is aimed at detecting the relationship between landscape functioning helps with learning with academic achievement of the school. The study found that the landscape function score helped the
learning to be high (79.6%). A significant linkage between landscaping function helps the process of learning with higher achievement of academic at 0.01 level with the value of Chi-squared at 35.993. A more detailed test is performed between the scores of the component of the landscape function that helps with the school achievement score segments (Table 4). The results showed that there was significant correlation between weak and simple (Guilford, 1956) among the overall result for function in landscaping in assisting the process of learning with the achievement of academic in school (p <0.01, r = 0.504). Generally, this test proves there is correlation between school landscape and process of learning at school within Klang-Langat Valley. Results of the analysis shows that there are significance between landscape function helps learning process against achievement in Malaysia Examination Certificate (p <0.01, r = 0.355); with Middle Lower Examination achievement (p <0.01, r = 0.370); with the achievement awards of quality (p <0.01, r = 0.243). Hence, it shows that landscaping function helps process of learning by signifying relationships all analyzed segments in academic achievement.

**Table 4. Pearson Correlation on the Relationship between Landscape Function in Assisting Learning Process and Academic Achievement**

| Relationship                                      | r       | Sig | Level of Relationship |
|---------------------------------------------------|---------|-----|-----------------------|
| Landscape function (helping learning) with SPM achievement | 0.355** | 0.000 | Weak                  |
| Landscape functions (helping to learn) with the achievement of PMR | 0.370** | 0.000 | Weak                  |
| Landscape function (helping learning) with achievement of quality awards | 0.243* | 0.013 | Weak                  |
| Landscape function (helping learning) with academic achievement (overall) | 0.504** | 0.000 | Moderate              |

Note: ** Correlation relationship is significant at 0.01 (two-tailed) levels;  
* Significant correlation relationship at 0.05 (two-tailed) 

Overall, there is a significant relationship though at a moderate and weak levels between the landscape function in assisting the learning process with the academic achievement of the school. At this point, the relationship involves the landscape function of helping learning to cover the entire landscape components of the school consisting of elements such as pavilion, pergola, bench, garden table, signboard, flowerpot, and soft elements such as shade, shrubs, fruits, cover of earth, herbs and others.

5. **Conclusion**

In conclusion, the importance of landscape in school not only benefits students, teachers, but the parents as well. Commentary on the importance of school landscapes can impact student psychology, student behavior, physical activity and the school environment. Issues and challenges of the school landscape have a profound impact on the development of school landscapes in Malaysia. School landscape management is an important topic because effective landscape management can affect the academic achievement of the school and the quality of the school environment in general. Challenges of the school's landscape development have slightly affected the landscape design of the school.

The characteristics of the school landscape are important aspects of the study highlights as each school has different landscape features influenced by the location namely urban and rural schools. Some of the factors identified have become the barriers to the development of the school landscape can be solved based on observations on the school area. With an interview with the school management, some problems with regard to the landscape can be identified. In addition, observations conducted by
researchers on the school area can be portray the issues and problems of the school landscape. Finally, article writing that refers to earlier studies can provide some guidance towards improving this present article.

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**References**

[1] Anne C. Bell, Janet E. Dyment & Lucas, J.A (2009). The relationship between school ground design and intensity of physical activity, Journal Children's Geographies Volume 7, 2009 - Issue 3.

[2] Anne C. Bell & Janet E. Dyment (2008). Grounds for health: the intersection of green school grounds and health-promoting schools, Journal Environmental Education Research Volume 14, 2008 - Issue 1

[3] Dowdell, K. Gray, T. & Malone, K. (2011). Nature and its Influence on Children’s Outdoor Play, Australian Journal of Outdoor Education, 15(2), 24-35, 2011

[4] Matsuoka, R. H. (2008). *High school landscapes and student performance* (Doctoral dissertation, University of Michigan).

[5] Salina, S. M. A., Katiman, K. R., & Hair, A. H. A. A. (2014). Characteristics of Landscape and Surrounding Qualities of Schools in Klang Valley. *Asian Journal of Multidisciplinary Studies*, 2(6).

[6] Rohhayati, N. (2008). Student perception of school landscape and its influence on learning experience at the award winning secondary school in Kelantan, Malaysia. *Unpublished Master Thesis. University of Putra Malaysia*.

[7] Stephenson, A. (2003) Physical risk-taking: dangerous or endangered?, Early Years, 23(1), 35–43.

[8] Waller, T. (2005) ‘This is the way we go to the park!’ Recording and evaluating young children’s knowledge and perspectives of geography, paper presented at the British Educational Research Association Annual Conference (BERA), September.

[9] Rivkin, M. (1998) Happy play in grassy places: the importance of the outdoor environment in Dewey’s educational ideal, Early Childhood Education Journal, 25(3), 199–202.

[10] Bilton, H. (2002) Outdoor play in the early years (London, David Fulton).

[11] Ouvry, M. (2003) Exercising muscles and minds: outdoor play and the early years curriculum (London, National Early Years Network).

[12] Rivkin, M. (1995) The great outdoors: restoring children’s right to play outside (Washington, DC, NAEYC).

[13] Katiman Rostam. (2006). Migration to the suburbs Metropolitan Region Lembah Klang. *Akademika*, 68: 3-27.

[14] Katiman Rostam, Mochamad Rosul, Er Ah Choy, Abdul Rahim Mohd Nor, Zaini Sakawi, Norazuan Md Hashim & Aishah@Esah Hj Muhammad. (2010). Urbanization and the spread of the city on the outskirts of Klang-Langat Metropolitan Region. *Geografia : Malaysian Journal of Society and Space*, 6 (2): 37 – 50.

[15] Salina, S. M. A., Katiman, K. R., & Hair, A. H. A. A. (2015). School Landscape Environments in Assisting the Learning Process and in Appreciating the Natural Environment. *Procedia-Social and Behavioral Sciences*, 202, 189-198.